Challenges for eliminating vitamin A deficiency in Chuuk State, Micronesia

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Introduction

Vitamin A Deficiency (VAD) in children is a serious health threat. In addition to causing blindness, VAD potentiates the morbidity and mortality associated with the effects of diarrheal and respiratory diseases common to children throughout the developing world. Children of the Pacific have not been spared, particularly in the islands of the Federated States of Micronesia (FSM) where recorded VAD rates are among the highest in the world [1]. The tragedy is that VAD and its complications are entirely preventable.

In a recent blood sampling of serum retinol among children in Chuuk State[2], 96% of the samples tested had moderate to severe VAD - 79% of which had serum retinol levels low enough to put them at greater risk for severe debilitating disease and possibly death. A far less sensitive indicator of assessing the risk of a child population to VAD is looking for gross clinical signs of early disease manifestation - usually early eye findings such as Bitot spots. The World Health Organization suggests a maximum rate of VAD diagnosed by clinical eye signs to be 1.52% of children under 5 years in a country. Above this rate is considered a public health problem. The children examined in Chuuk State had a clinical VAD rate of 17%[3] - far exceeding the WHO guidelines. By both the sensitive retinol studies and the less sensitive clinical evaluations, the children of Chuuk State are at increased risk of death and suffering due to the epidemic of VAD in their islands.

VAD risk factors

There are a number of factors which probably have contributed to the high prevalence of VAD in Chuuk State including:

- low intake of green vegetables and yellow fruits high in Vitamin A;
- poor nutritional knowledge/education among mothers on Vitamin A and its importance;
- an increasing rate of bottle feeding rather than breast feeding among mothers;
- low supply of fresh fruits and vegetables; and,
- the high prevalence of intestinal parasites especially among children.

An additional reason could be the change from a traditional exchange or barter economy to a cash economy which places a lower value on local foods and a higher value on imported processed foods. High consumption of imported foods which are nutritionally low in Vitamin A such as rice, flour, and low quality meats occurs because these foods are cheaper than local produce. The supply of locally grown foods from rural to urban areas is often impeded by lack of market outlets, storage and transportation problems.

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Social mobilisation campaign

VAD, although believed to be an existing public health issue by the Chuuk State health care workers, was minimally appreciated by the general public as a problem until the start of the Chuuk State/Unicef Vitamin A Deficiency and Vermox (VADAV) campaign. This initiative has mobilized the population of Chuuk and has increased their awareness on the importance of Vitamin A on health and, particularly, on the well-being of children. The severity of VAD has now been recognized by most of Chuuk State's populace as one of its leading health problems.

The Chuuk Director of Health Services is in charge of the campaign. The VADAV Co-ordinator is the Maternal Child Health Co-ordinator for Chuuk State and is responsible for program planning and co-ordination and evaluation of campaign activities: training health assistants, distributing medications and materials, record keeping, and campaign monitoring and evaluation. The Chief of Dispensaries, in collaboration with the VADAV Co-ordinator, trains the Health Assistants (HAs) in the outer islands on how to dispense Vitamin A capsules and also ensures delivery of

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Vitamin A one month before the outer island VADAV campaign. The Health Educator produces and provides educational programs to the community on all aspects of the campaign for the HAs to distribute within Chuuk lagoon and the outer islands. On the island of Weno, the administrative center of Chuuk State, Public Health staff distribute this information.

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The target population for the VADAV campaign are children aged 1 to 12 years old, non-pregnant lactating mothers and emergency cases of gross VAD. The recipients are given 1 capsule of Vitamin A (200,000 i.u.) and one tablet of Vermox (100 mg. mebendazole) twice daily for 3 days. Vitamin A distribution is done every six months during the third week of March and September each year. On Weno, the public health staff are divided into 13 teams. Each team goes to a designated school to distribute medications to children 5 to 12 years old. On the second day of the campaign, the distribution sites are the village community centers, where children under five years and non-pregnant lactating mothers receive their medications. Around the Chuuk lagoon and in the outer islands, treatments sites are at the dispensaries only. No home visits are made. Teachers bring the school aged children to the dispensary on Monday, and the non-pregnant breast feeding mothers and children under-five receive their medications on the second day. Most of the campaign should be finished during the first two days. The rest of the target population who miss the Monday and Tuesday campaign efforts are then identified and treated over the rest of the week. Village leaders and community groups' support are utilized to encourage those who remain untreated to receive medications during the rest of the week.

Two months before the scheduled campaign, prime time radio interviews with the Chuuk Director of Health Services and broadcast speeches of prominent local politicians precede the campaign and continue a week thereafter. Video films of the complications of VAD as well as interviews with the Lt. Governor, the Deputy Director of Agriculture, and the President of Chuuk State Senate are televised by the local TV station.

Posters and leaflets on Vitamin A are distributed to mothers at their routine public health clinic visits and to the target communities two weeks before the campaign. Campaign streamers are hung across busy roads to announce the campaign week and informational posters are placed in business, private, government and non-government locations.

Along with the VADAV campaign, several strategies are also employed by the State Government to combat VAD, with assistance from different international organizations. Currently Chuuk receives funding and program support from Unicef for the Family Food Production and Nutrition Project (FFP&NP). The FFP&NP's goal is to promote increased consumption by children and pregnant mothers of Vitamin A rich foods as part of the overall objective of increasing consumption of locally grown foods. The VADAV campaign is also complemented by the anti-VAD objectives of the joint WHO/Unicef program on the Baby Friendly Hospital Initiative. Locally, the VADAV campaign is supported by Chuuk State's Maternal Child Health Program which provides the mebendazole tablets and staff support for the campaign.

On-going strategies in the prevention of Vitamin A deficiency in Chuuk State

Nutrition Education

This is provided to mothers and guardians, concerning the reasons for the need for Vitamin A rich foods in a child's diet; the benefits of breast feeding; and importance of locally grown foods, through visits to the demonstration gardens featuring easy to grow and locally acceptable crops rich in Vitamin A.

Promotion of Home Gardening

This is to increase production as well as diversification of Vitamin A food plants within existing food growing systems both to help family economies and improve overall nutritional well-being. In addition, this promotes the distribution of seedlings, cuttings and seed packets of locally consumed Vitamin A rich foods for cultivation in the community.

Community Extension Projects

These establish demonstrations of cooking methods for mothers in order to improve their skills and capacity to incorporate locally grown Vitamin A rich foods into their family diet.

Communication Plan

The following activities are being carried out: design a plan to raise awareness and to mobilize the general public to prevent VAD utilizing existing local resources; promote the development and distribution of on-going educational materials regarding VAD and the VADAV campaign; widely disseminate leaflets, posters, radio programs, video spots and interviews with local politicians and community leaders to government, non-governmental organizations, religious groups and the general public; and develop and promote the distribution of information posters on "**FOR WHOM, WHAT, WHEN, WHY** and **WHERE**" campaign medications are to be distributed.

Promotion of Health Through Teacher-Child-Parent (TCP) Program

Integrate into the TCP program curriculum in the elementary school system the need for Vitamin A rich diets and the short term rationale for the VADAV campaign to combat VAD. Promotion of the the understanding that dietary change will be the long term solution to eliminate VAD in the community. TCP promotes nutritional and health education for both students in school and parents at home who become involved in school activities. The curriculum covers important issues on food production, nutrition, environmental sanitation, and the development of information, education, and communication (IEC) materials.

Health Workforce Leadership Development

The VADAV Co-ordinator and a local physician - will soon receive training at the U.S. Centers for Disease Control and Prevention/Emory University Program for Micronutrient Malnutrition to complement the Chuuk VADAV Campaign. The training will focus on the planning, management, evaluation, and the health workforce and social mobilization techniques of programs addressing VAD and other malnutrition problems in Chuuk.

Project constraints

Health Workforce Limitations

The provision of health care and preventive services in Chuuk are affected by the scarce financial resources and the shortage of an appropriately trained health workforce. Identification and selection of key, committed, and full time personnel in the Departments of Health and Agriculture is critical to the success of the campaign. Once accomplished, it will be easier to mobilize prominent community leaders and the people to more effectively conduct the VADAV campaign and set the course for long term solutions to address all forms of malnutrition in Chuuk State.

Geographical Distribution

Chuuk is a collection of tiny high and low islands - 99 lagoon islands and 12 outer islands - scattered across a vast expanse of Pacific Ocean. Effective communication and transportation is needed to train HAs among the outer islands. It is expensive and the limitation of available funds slows progress in project implementation in combating VAD and establishing long term nutritional objectives for the community.

Health Services Organization

Training funds are needed to improve the supervisory capacity of mid-level health care managers to better prepare HAs in the necessary knowledge, attitude, and skills required for combating VAD and integrating the long term nutritional strategies for eliminating VAD and other forms of malnutrition in the community (e.g kwashiorkor).

Relocation of Demonstration Gardens

With the relocation of the Chuuk State Department of Agriculture, the demonstration nursery was destroyed which has affected the promotion of home gardening, the distribution of Vitamin A rich planting materials, and the consumption of locally grown foods.

Conclusion

Chuuk State, which has one of the highest recorded Vitamin A deficiency rates in the world, has launched an ambitious community-oriented initiative - the Vitamin A Deficiency and Vermox Campaign - to combat VAD and set the stage for developing and implementing long term community-based strategies to eliminate VAD and other forms of malnutrition.

" ... the recipients are given one capsule of vitamin A (200,000 I.U.) and one tablet of Vermox (100 mg mebendazole) twice daily for 3 days ... this is done every March and September "

References

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