SUMMARY

Vitamin A supplementation is a recognized high-impact intervention to reduce child mortality in vitamin A- deficient countries. Broad-based supplementation was launched in many countries by linking vitamin A capsule distribution to National Immunization Days (NIDs) conducted for the purpose of polio eradication. These activities have garnered widespread acceptance and have achieved consistently high rates of coverage among children. However, NIDs are being scaled down or phased out in many countries as the incidence of polio declines, giving rise to an urgent need to develop and institutionalize alternative strategies to sustain the delivery of vitamin A to young children. To date, many countries have explored different mechanisms to deliver vitamin A independent of NIDs and a number have produced promising results. The one common theme for these efforts is the periodic, active distribution of capsules or syrup through existing, permanent institutions. Enough evidence exists for national governments and international partners to work together to implement this broad strategy. This is vitally important to assure that the benefits of vitamin A made available during joint distributions through NIDs are not lost and can be made a sustainable part of primary health care programs.

PURPOSE

Almost a decade ago, a meta-analysis of vitamin A field trials estimated that mortality declines from improving vitamin A status of children, primarily through periodic administration of high-dose vitamin A supplements, could be as high as 30 percent.¹ To realize the full potential of vitamin A supplementation in reducing child mortality, three parallel modes of distribution are needed:

• Integration of vitamin A distribution into the Expanded Program on Immunization (EPI)
• Vitamin A delivered twice-yearly to children six months to five years of age
• The therapeutic administration of vitamin A supplements to children with measles, diarrhea, respiratory infection, chicken pox, or severe protein-energy malnutrition

Many countries have already incorporated vitamin A supplementation into their EPI programs and many have adopted policies calling for therapeutic administration of vitamin A as a part of the treatment of a number of childhood diseases, especially in countries introducing Integrated Management of Childhood Illness (IMCI). For children from six months to five years of age, experience from a growing number of countries indicates that the twice-yearly delivery of vitamin A supplements through synchronized, pulsed distributions yields excellent results. These positive experiences can be translated into a replicable model for other developing countries. The purpose of this paper is to elaborate on these experiences and the elements that contribute to success.

BACKGROUND: LAUNCH OF WIDESPREAD VITAMIN A SUPPLEMENTATION THROUGH NIDS

The scientific trials to measure the efficacy of vitamin A supplementation conducted in the late 1980s and 1990s were deliberately undertaken in environments where clinical signs of vitamin A deficiency were in evidence. Even in the absence of demonstrably high rates of severe deficiency, however, a substantial mortality impact from vitamin A can be anticipated in areas with high levels of sub-clinical deficiency. And, while the measurement of levels of sub-clinical deficiency is expensive and time consuming, surveys indicating high levels of sub-clinical deficiency in children have, invariably, occurred in countries with high

infant and child mortality. Therefore, infant and child mortality rates can safely be used as proxies for sub-clinical vitamin A deficiency.

Vitamin A lends itself to innovative mechanisms of delivery as it has a characteristic that sets it apart from many other health-promoting commodities. It is stored in the body and, therefore, prophylactic, high-dose supplements administered to children once every six months offer important protection against the deleterious effects of vitamin A deficiency. Vitamin A does not have to be delivered daily nor does it have to be delivered to children at a particular age to be effective.

WHO, UNICEF, USAID, other development organizations, and governments responded to these findings by adding vitamin A supplement distribution to NIDs in more than 50 developing countries. This made good sense because

- the target population of under-five-year-olds was similar for both polio and vitamin A;
- nationwide campaigns reached the “unreached” and those at highest risk;
- limited financial and human resources were used efficiently; and,
- cost-effectiveness and impact were increased.

This resulted in high coverage for vitamin A supplementation and substantial, immediate public health impact. Field staff found that integration of vitamin A with NIDs met with widespread acceptance and appreciation by parents and other child caretakers. Building on this current “culture of prevention” and strong community support is critical to continuing high levels of vitamin A coverage.

In many countries, NIDs are phasing out as increasing progress is achieved towards polio eradication. In others, they are being extended for a limited time and/or replaced with more localized campaigns. It is critically important for the well-being of children that national governments and donors act now to establish alternative mechanisms for distribution of vitamin A to children under five.

**TWICE-YEARLY VITAMIN A SUPPLEMENTATION SEPARATE FROM NIDS**

A number of countries have implemented vitamin A capsule distribution programs for children separate from NIDs. Many of the program approaches used have been successful in engaging the population and achieving reasonably high coverage. Although these approaches vary by country, they have the following common theme: they represent periodic, active, institutionalized distribution of vitamin A supplements.

- It is **periodic** (usually twice a year) either during a specified week or day(s);
- It is **active** in that, just prior to a scheduled distribution, mothers are reminded and encouraged to take their child to designated centers or outreach posts for delivery of the supplements;
- It is **institutionalized** in that it is run or managed routinely by health workers, frequently with the support of officials from other sectors, and sometimes with volunteers;
- It often **integrated** with other interventions, such as growth promotion, deworming, bed nets, vaccinations, and other micronutrient programs.

There are some differences in approach. In Nepal, Indonesia, and Bangladesh, the distribution is almost entirely done by health workers or existing health volunteers using existing fixed and outreach sites. Other countries, such as Niger and Ghana, rely more on special volunteers, temporary outreach sites, and support from other sectors. In many countries, mechanisms already exist to accommodate twice-yearly distribution. In others, where access to health services is good, relatively inexpensive promotional campaigns are conducted to encourage families to bring their children to the health facilities and outreach sites on designated distribution days. The synchronization of the supplementation nationally or region-wide facilitates unified logistics, social mobilization/publicity, and supervisory support for the distribution, saving money and yielding better coverage.

---

Three active outreach-type strategies are used to achieve high vitamin A coverage: Child Health Weeks, Micronutrient Days, and Community-based Outreach. One can envision other strategies as well. Although these strategies are described separately, there is enormous potential for benefit in overlaps among them.

**1. CHILD HEALTH WEEKS:** Vitamin A supplementation has been incorporated into a package of preventive services designed to improve child survival through periodic outreach and facility-based promotions. By establishing a twice-yearly cycle of district activities designed to improve facility usage for preventive services, coverage of several key child survival interventions is improved.

This model has worked well in Nicaragua, where, since 1994, twice-yearly integrated National Health Rallies have included vitamin A supplements, ORS, deworming, growth monitoring, iron supplements, and routine immunization. This has resulted in consistent vitamin A coverage above 70 percent, the highest in all of Latin America. The services are provided at health facilities, and the rallies may last several weeks. Public and professional recognition encourages health staff to achieve high rates of coverage. Communities are mobilized by engaging media, churches, and other community groups.

This approach is also being used with success in Zambia where vitamin A provided the foundation of the preventive package. Health center district managers view this as an opportunity to upgrade coverage on numerous preventive health interventions. The objectives of the Child Survival Promotion Week in February 2000 addressed vitamin A supplement coverage, routine vaccination coverage (particularly nine-month measles), helminth infections, and growth promotion. This strategy presents an opportunity to promote other health education messages, including exclusive breast-feeding, postnatal vitamin A and iron needs, and use of treated bed nets for malaria.

**2. MICRONUTRIENT DAYS:** Annual NIDs provide but one vitamin A supplement per year. Micronutrient Days were conceived to provide the second.

Niger and the Philippines have successfully implemented Micronutrient Days. Here specific dates during the year are identified as the focus for distributing vitamin A supplements and other micronutrients, such as iron and folic acid tablets. These may be either national or subnational, but they are distinguished by focusing efforts on micronutrients rather than on a range of preventive activities. The fourth Philippines National Micronutrient Day was undertaken in 1996 and coverage with vitamin A was estimated at 90 percent. This contrasts with coverage of less than 10 percent achieved through reliance on routine health services prior to 1993 when NIDs and Micronutrient Days were introduced. Micronutrient Days in the Philippines have been more recently expanded to include other preventive health services and are now called Guaranteed Health for Children. A similar trend of expanding the range of services offered through Micronutrient Days is also taking place in Niger.
COMMUNITY-BASED OUTREACH: This strategy is usually administered through the government health infrastructure and is based on massive social mobilization. Supplements are distributed to district health offices, then on to health posts, and then through village health workers.

One successful example of this approach comes from Nepal where, in 1993, a program was initiated to have female community health volunteers distribute supplements on the same four days every year (two days for the first distribution and two for the second). The program has expanded progressively and in 2001 all 75 districts in Nepal will be participating. USAID’s investment in the new districts added to the program in a given year is quite high as there is a need for promotion, training, mobilization, and monitoring and evaluation. After that first year, the program is left in the hands of local authorities and, impressively to date, there has been no measurable drop in coverage, even in the districts that joined the program as early as 1993. The success of the program is attributed to the pride of ownership in the program established by the cadre of female community health volunteers. Another critical success factor is the leadership and management expertise of the local technical assistance group (an NGO). Mini-surveys are used to measure coverage and provide feedback to managers and community volunteers.

COSTS AND SUSTAINABILITY OF PERIODIC, ACTIVE, INSTITUTIONALIZED DISTRIBUTION

Experience with periodic, active, institutionalized distribution is limited but some observations regarding costs and sustainability can be made at this time. The cost of vitamin A capsules is not great, approximately .02 U.S. cents each. To date, the donor community has furnished most of the capsules. Ultimately, some combination of cost-recovery and government budgetary allocation will be necessary to assure the long-term viability of distribution programs. The costs of creating a mechanism for encouraging a periodic visit to a health clinic or community distribution point are for advocacy within the health community, the training of the distributors, outreach to encourage participation of the mothers, logistics to assure supply, and program monitoring. Many of these costs are greatest at start-up and are borne only once. Upon integration of the concept of periodic distribution into routine health sector functions, such as retraining and drug distribution, they are negligible on the margin. And, as argued above, by combining vitamin A distribution with other preventive health services best delivered periodically, the costs of outreach and monitoring might well be shared among programs.

CONCLUSION

Enough evidence exists to demonstrate that the periodic, active, institutionalized distribution of vitamin A, coupled with integration into routine EPI and therapeutic dosing to children suffering from malnutrition or infectious diseases, can form an effective strategy for delivering vitamin A supplements to vitamin A-deficient populations. Each country needs to determine its own approach through piloting, operations research, or other means. However, due to the ending of NIDs, urgent action is critical in order to maintain coverage of vitamin A supplementation in many of these countries. The time to act is now for both national governments and international donors.