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Postpartum Supplementation with Vitamin A has Extremely Low Coverage in Rural Bangladesh

Data collected by the Nutritional Surveillance Project (NSP) of Helen Keller International (HKI) and the Institute of Public Health Nutrition (IPHN) in 2002 show that only 3.4% of women in rural Bangladesh who completed a pregnancy in the previous 3 years received a vitamin A capsule (VAC) after delivery. This is a major concern because maternal vitamin A deficiency is a public health problem in Bangladesh and it is therefore essential that VAC are made universally available to all women shortly after delivery. IPHN has revised the guideline on postpartum vitamin A supplementation, and so the period during which women may receive a VAC after delivery has been extended from 2 to 6 weeks. This new guideline will only improve coverage if more effective strategies for distributing VAC to postpartum women throughout the country are also introduced. Surveillance should be used to monitor the coverage of postpartum vitamin A supplementation and to improve strategies to increase coverage.

Vitamin A deficiency (VAD) is a major public health problem in many developing countries. The consequences of VAD in children are well known and include poor growth, impaired immunity to infection, increased risk of ill-health and dying, and xerophthalmia leading to blindness.¹ Until recently, the magnitude and implications of VAD in women of reproductive age were less well recognized. However, recent studies have indicated that VAD is not only common among pregnant and lactating women in poor populations, but that it can have serious consequences for the health and survival of women and for the vitamin A status of their children.²

Many women in developing countries are deficient in vitamin A because they cannot afford to eat sufficient amounts of foods rich in vitamin A, particularly animal products, and because their requirements are high due to repeated pregnancies and prolonged periods of breastfeeding. VAD in women may increase the risk of ill-health and dying during pregnancy and the early

postpartum period, and in severe cases may increase the risk of infant death in the first few months of life. Lactating women with VAD produce breast milk that has a low concentration of vitamin A, which is one of the major causes of VAD in young children.³ Breast milk is the only source of vitamin A for infants who are exclusively breastfed, and is a very important source for older infants and children in Bangladesh, whose diet is also very low in vitamin A.⁴

Maternal night blindness in Bangladesh

Night blindness is an early clinical symptom of VAD, and is commonly known by the local term *rat kana* in Bangladesh. VAD is considered a public health problem in a population if the prevalence of night blindness exceeds 5% in women during their most recent full-term pregnancy in the last 3 years.² Figure 1 shows NSP data collected on maternal night blindness during the most recent pregnancy in the last 3 years between February and July 2002 in 24 rural sub-districts (*upazila*) throughout Bangladesh. Three sub-districts, which

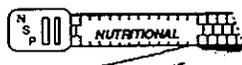
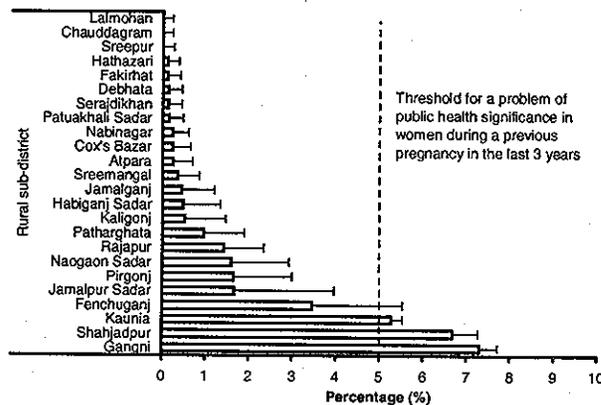


Figure 1. Percentage of women interviewed in Feb-Jun 2002 who were night blind during their most recent pregnancy in rural Bangladesh. Only women who had a pregnancy in the previous 3 years lasting at least 8 months are included (n=19,117). Bars indicate 95% confidence intervals adjusted for design effect.



represent 12.5% of the sub-districts monitored by the NSP, had a prevalence above the 5% threshold for a problem of public health significance: Gangni, Shahjampur and Kaunia. These clusters of significant VAD need to be acted upon because the high prevalence indicates that mothers and children are at considerable health risk. Although VAD is not a public health problem in the other sub-districts, each case of maternal night blindness signals that there are many more women with very low or depleted vitamin A stores, which increases the risk of illness and dying. In fact, the national vitamin A survey conducted by the NSP in 1997 found biochemical evidence of VAD (serum retinol <1.05 µmol/L) in 49% of pregnant women and 46% of lactating women in rural Bangladesh.⁵

Postpartum vitamin A supplementation

To help increase mothers' vitamin A stores, which are depleted during the course of pregnancy and lactation, and to increase the vitamin A content of breast milk, the IPHN of the Government of Bangladesh recommends that all women receive a high dose vitamin A capsule (VAC) containing 200,000 international units (IU) of vitamin A after every delivery. Because high doses of vitamin A can have a teratogenic effect in the fetus, VAC should not be given to women beyond 6 weeks of delivery in order to avoid inadvertent treatment of pregnant women.

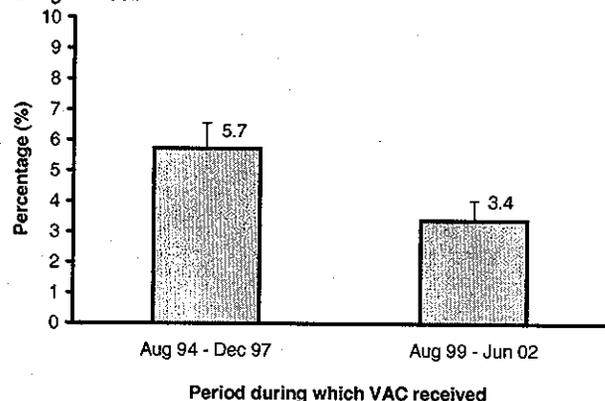
The 1997 vitamin A survey revealed that only 5.7% of mothers had received a VAC within 4 weeks of their most recent delivery in the last 3 years. Recent data from the NSP indicate that there has been no

improvement in coverage in the subsequent years. To the contrary, Figure 2 shows that only 3.4% of rural mothers interviewed between February and June 2002 had received a VAC within 6 weeks of their most recent delivery in the last 3 years.

Such low coverage is largely due to the lack of an effective delivery strategy for postpartum vitamin A supplementation. Health workers of the Ministry of Health and Family Welfare (MOHFW) have been trained to give VAC to mothers at health facilities at the time of delivery or at postnatal check-ups. However, over 90% of women deliver at home and many do not utilize postnatal health care facilities, particularly during the first 40 days after birth when the practice of seclusion is common. Some MOHFW field staff are responsible for distributing VAC to women in their homes but this has also been ineffective due to the lack of a functioning registration system to identify and follow-up new births in the community. Besides, postpartum women who do have contact with health workers are frequently not supplemented because there has been no provision of VAC specifically for postpartum women and so the supply of VAC to health facilities is inadequate.

High coverage has, however, been achieved by the Bangladesh Integrated Nutrition Project (BINP) of the Government of Bangladesh and by some other NGO programs that have a strong network of trained

Figure 2. The percentage of women interviewed in Aug-Dec 1997^a (n = 10,088) and Feb-Jun 2002^b (n=18,813) who received a VAC after delivery in the 3 years preceding the interview. Bars indicate 95% confidence intervals adjusted for design effect.



^aWomen with children aged less than 3 years who received a VAC within 4 weeks of their most recent pregnancy (data from the NSP national vitamin A survey)

^bWomen who received a VAC within 6 weeks of their most recent pregnancy <3 years ago (data from routine NSP ...)

community-based health workers, strategies to reach women shortly after delivery, and an adequate supply of VAC. The two sub-districts with the highest coverage reported by mothers in February to June 2002 (Sreemangal and Jamalpur Sadar) were both sites of the BINP. Coverage of postpartum vitamin A supplementation in these two sub-districts was 25.9%, over 50 times the coverage in sub-districts where the BINP had never been implemented (0.6%)^c. The BINP used a network of Community Nutrition Promoters (CNP) to deliver community-based health and nutrition services to pregnant and lactating women. The CNP kept a register of pregnant women in their catchment areas, which enabled new births to be identified and VAC to be distributed to women in their homes within 3 days of delivery when birth weight was recorded.

Improving postpartum VAC coverage

There is an urgent need to improve the current delivery strategies for distributing VAC to postpartum mothers throughout Bangladesh. IPHN took the first step in December 2001 by issuing a new guideline which stipulates that women should be given one VAC containing 200,000 IU vitamin A within 6 weeks of a delivery. This guideline, which replaces the previous policy of supplementation within 2 weeks of delivery, is in accordance with the recommendation of the World Health Organization and International Vitamin A Consultative Group (IVACG)^d. The 6-week period for supplementation is appropriate because women are unlikely to become pregnant within the 6 weeks of delivery and so VAC supplementation is safe.⁶

The new guideline will only improve coverage if special measures are also taken to increase access to VAC within 6 weeks of delivery. Building on the lessons learned from BINP and other programs in Bangladesh and elsewhere in the developing world that have achieved high postpartum VAC coverage, including the highly successful National Vitamin A Program in Nepal⁷, all opportunities for delivering VAC to mothers at low cost should be explored. Special attention should be paid to delivery mechanisms that are sensitive to social restrictions on the mobility of women following delivery, including

home distribution through health workers and other community-based individuals who are in contact with mothers at the time of delivery and in the postpartum period. Vitamin A supplementation can also be linked to Maternal and Child Health services, including immunization, since infants should receive a BCG and DPT immunization during the first 6 weeks of life. All these delivery mechanisms are dependent on an adequate supply of VAC to health facilities, dissemination of the new guidelines to all health workers in the public and private sectors, and demand creation through sensitization of mothers.

Surveillance should be used to monitor the coverage of postpartum vitamin A supplementation. The NSP is well suited for this purpose because it collects data throughout the year on a nationally and divisionally representative sample of rural mothers with children aged less than 5 years. To identify which strategies are most effective for reaching postpartum women with VAC, the NSP has introduced a series of questions to collect information on the utilization of health care services by women at and following delivery, and from where and from whom they received a VAC.

Integrated strategies to improve vitamin A status

The high prevalence of maternal night blindness suggests the need to also focus more attention on the prevention and control of VAD in all adolescent girls and women of reproductive age in Bangladesh. Postpartum vitamin A supplementation is still a rare event in Bangladesh and only provides enough vitamin A to meet the needs of the mother and infant for a few months. Other strategies are therefore needed to target adolescent girls and women before their first pregnancy as well as during their years of childbearing. The best approach is to use a combination of strategies including daily or weekly supplementation with low doses of vitamin A or multi-micronutrients that are safe for all, irrespective of pregnancy status; dietary improvement, particularly increased consumption of animal foods rich in vitamin A, through homestead production and food promotion; and food fortification with vitamin A.

^cThe BINP was implemented in Chaudagram in April 2001, 20 months after the start of the recall period for postpartum vitamin A supplementation, and so data from this sub-district are not included here.

^dAlthough the 6-week period for supplementation is in-line with international recommendations, IVACG now recommends that women receive 400,000 IU given in two equal doses at least 24 hours apart and within 6 weeks of delivery.⁶ This new dosage schedule has yet to be implemented in Bangladesh.

Conclusions

Coverage of postpartum vitamin A supplementation in Bangladesh is extremely low and demands immediate attention by all stakeholders in maternal and child health because VAD is a public health problem in Bangladeshi mothers and has serious consequences for the health and survival of women and their infants.

Recommendations

- Given the cost-effectiveness of vitamin A supplementation, it is essential that a high-dose VAC containing 200,000 IU vitamin A is made universally available to all mothers within 6 weeks of delivery.
- Necessary steps should be taken to develop and implement an effective strategy for delivering VAC to mothers throughout Bangladesh. This will depend on adequate supply of VAC to health facilities, dissemination of the new guidelines to all health workers in the public and private sectors, and demand creation through sensitization of mothers.
- Surveillance by the NSP should be used to monitor coverage of postpartum vitamin A supplementation and to determine which strategies are most effective for reaching women with VAC.
- Other complementary strategies are needed to improve vitamin A status in adolescent girls and women, including daily or weekly supplementation with low-dose vitamin A or multi-micronutrients and food-based strategies (homestead gardening, food promotion and food fortification).

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