Premature abandonment of global vitamin A supplementation programmes is not prudent!

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Mason \textit{et al.}\textsuperscript{1} provide an overview of vitamin A supplementation (VAS) programmes globally and conclude that the current strategy for biannual supplementation with vitamin A between 6 and 59 months of age\textsuperscript{2} has outlived its utility. They base their conclusions on the following main arguments. First, despite VAS programmes, global prevalence of vitamin A deficiency has not changed; second, the evidence on the effectiveness of VAS in terms of child mortality was drawn from studies undertaken over two decades ago\textsuperscript{3} and may not be relevant any more in the current context of reduced child mortality especially in deaths related to diarrhoea and measles. They cite heavily the decade-old but recently published Deworming and Enhanced Vitamin A (DEVTA) study in India, where a lower effect size on under-5 mortality was seen.\textsuperscript{4} Mason \textit{et al.} conclude by suggesting that dietary diversification and fortification strategies may offer a more effective set of interventions.

We concur with the notion that eventually appropriate diets and interventions to reduce poverty and food insecurity may offer the best options to improve health and nutrition status across populations. However, are we at a stage when a well-established and accepted global programme should be abandoned without due attention to the feasibility, current effective coverage and cost-effectiveness of alternative strategies? We strongly believe that such a course could seriously jeopardize gains in child health and survival. There are several arguments to support our contention.

First, it is important to note that twice-yearly high-dose vitamin A supplementation is not an intervention to sustainably control vitamin A deficiency, but rather an immediate, life-saving intervention to improve child survival. In the latter context, it is also incorrect to relate VAS programmes to child mortality alone. Whereas admittedly the programme was initiated three decades ago with child mortality impact in mind, it was always meant to improve morbidity outcomes as well. There is ample indirect evidence that this has indeed been achieved in many regions of the world. The current rate of reduction in diarrhoea mortality globally\textsuperscript{5} is disproportionate to the change in coverage of Oral Rehydration Solution (ORS) and zinc usage or indeed breastfeeding rates, and has also largely taken place in the very regions (Latin America and South East Asia excluding India) where the rate of progress in reducing child mortality and VAS programme coverage has been highest.

Figure 1 shows some of the trends in vitamin A deficiency in countries of the region where population-level vitamin A deficiency and VAS coverage data over the past two decades are available.

It is also notable that in contrast to the statement that rates of global vitamin A deficiency have not changed, severe deficiency has indeed disappeared in many regions. Severe xerophthalmia and childhood blindness related to this have significantly reduced\textsuperscript{6} and this reduction has been attributed to a combination of success of measles immunization and VAS. Similarly, diarrhoea burden, especially rates of severe and persistent diarrhoea have reduced significantly.
over the last two decades. The benefits of VAS may thus extend well beyond mere mortality impact.

Caution must be exercised in using the results from the DEVTA study to make the case that the programme effectiveness is questionable. Numerous concerns have been expressed about the completeness of data capture in that study and the fact that it did not provide insights into the effectiveness of programme delivery. Notwithstanding the questions related to the DEVTA study and the limitations in pooling its data with existing trials of VAS, incorporating these data within the existing meta-analysis of VAS studies still indicates that the overall effect is significant, though reduced. In fact—given the diversity of the studies—by using a more appropriate random effects model, the DEVTA study accounts for 14% of the overall effect, and overall mortality reduction with VAS is 26% [relative risk (RR) 0.74, 95% confidence interval (CI) 0.64–0.87].

It is important to underscore that VAS are currently being delivered in various programme modes at scale, with coverage even higher in the most vulnerable countries. Whereas these include fixed delivery sites within the health system, they also include innovations that have been critical for enhancing service delivery and reach of a number of other interventions. VAS has played a large role in catalyzing twice-yearly events for child survival (child health weeks or days), which deliver a package of high-impact, low-cost child survival interventions. This has clearly had a major impact in reducing the cost of delivery and a synergistic effect on coverage of other interventions such as childhood immunizations, and screening and referral for treatment of severe acute malnutrition. Mason et al. provide no evidence for their assertion that somehow VAS programmes have detracted from other nutrition programmes or interventions. In contrast to other interventions globally, VAS and immunizations remain two of the more equitably distributed interventions, an important consideration in considering alternatives.

Mason et al. rightly point out that strategies for sustained elimination of vitamin A deficiency have rarely been deployed at scale, and there has been lamentably poor progress in reducing rates of vitamin A deficiency. This, unfortunately, is not unique to vitamin A, but is typical of most nutrition interventions. The authors argue that somehow focus on VAS programmes has inadvertently removed focus on other strategies to sustainably reduce vitamin A deficiency; however, no evidence to this effect is presented. It is much more likely that the gross under-investment in nutrition generally is the major cause of lack of investment in programmes to sustainably control vitamin A deficiency. As an illustration, official development assistance (ODA) to basic nutrition represented just 0.4% of total ODA in 2011, having increased from 0.2% in 2004. Very importantly, this is not a reason to call for reducing efforts on VAS, but rather calls for greatly enhanced investments in other, complementary, interventions that will lead to sustained control of vitamin A deficiency, such as large-scale food fortification, promotion of production and consumption of vitamin A-rich crops (including biofortified varieties), promotion of optimal breastfeeding, etc. This will clearly require long-term investments and evidence of effectiveness, indeed of cost-effectiveness before discarding one for the other.

We agree with the contention that better strategies need to be found for addressing the root causes of vitamin A deficiency and for programmes to prevent and treat existing population deficits. This needs a range of measures including the promotion of optimal vitamin A intake through dietary diversification and use of high quality vitamin A-containing foods, a challenge in low-income settings. This work needs to enhance and also include strategies to address deficiencies across the life course, prevention and replenishment of maternal micronutrient deficiencies and strategies to address vitamin A deficiency in the first 6 months of life, including potential neonatal VAS where maternal deficiencies are widespread.

However, the aforementioned course for action and research needs to be gradual and well thought through, avoiding the knee jerk reaction of the removal of a well-established global programme where the evidence of lack of effectiveness is, at best, debatable, and the evidence for efficacy is robust. The global public health community needs to ensure that current VAS programmes are sustained until there is robust evidence of sustained reduction of vitamin A deficiency through alternative strategies. Attention needs to be paid to increased quality, frequency and disaggregation of measurement of vitamin A deficiency and of effective coverage of VAS programmes, so as to provide a solid evidence base to inform national programmes on when it might be appropriate to scale back such programmes or target differently.

In summary, we believe that the existing guidelines on VAS are based on a robust evidence base, and more recent meta-analyses have reaffirmed the relevance of the intervention. Globally twice-yearly VAS has been one of the great success stories in scale-up of nutrition/child survival interventions. Any move to scale back such success has to be done with extreme prudence, as the risk of regression in gains in child survival is unacceptably high.

Conflict of interest: S.K.B. has worked for 19 years for a non-governmental organization (Helen Keller International) which has a strong focus on Vitamin A supplementation programmes.

References


