Authors' response

We appreciate the meticulous technical approach, namely "assessment of need, analysis and action", being proposed for downsizing the ongoing vitamin A supplementation programme in the country. Although there are no theoretical arguments against considering this approach, a practical common sense decision is urgently required on the basis of available information only; this issue cannot be allowed to linger on indefinitely. Financial and logistic constraints have till now precluded a nationwide micro-level estimation of serum retinol and "assessment of need, analysis and action". If this ideal scenario was not feasible for decades for initiating and maintaining the National Vitamin A Supplementation Programme, it is highly unlikely that the necessary political will and finances can be garnered for downsizing an ongoing contentious programme.

Isolated serum retinol level, particularly without control for sub-clinical inflammatory response, is not a reliable or "gold standard" biomarker for population estimate of vitamin A deficiency[1]. More specifically, the WHO consultation[1] designated vitamin A deficiency as a public health problem requiring intervention when at least one of the two specifications is met: *(i)* The prevalence of low serum retinol (0.70 μmol/l or below) is within the range specified (20 % or more) and another biological indicator of vitamin A status (including night blindness, breast milk retinol, relative dose response, modified dose response, or conjunctival impression cytology) also indicates widespread deficiency; and/

or *(ii)* The prevalence of low serum retinol indicates widespread deficiency and at least four demographic and ecologic risk factors are met, including: *(i)* infant mortality rate higher than 75/1000 live births and under-5-year mortality rate of higher than 100/1000 live births; *(ii)* full immunization coverage in less than 50 per cent of children at 12-23 months of age; *(iii)* less than 50 per cent prevalence of breastfeeding in 6-month old infants; *(iv)* median dietary intake lower than 50 per cent of recommended safe level of intake among 75 per cent of children 1-6 yr of age; *(v)* two-week period prevalence of diarrhoea 20 per cent or higher; *(vi)* measles case fatality rate 1 per cent or higher; *(vii)* no formal schooling for 50 per cent or more of women 15-44 yr of age; and *(viii)* less than 50 per cent of households with a safe water source.

The recently published district level estimates of child mortality[2] and the National Nutrition Monitoring Bureau third repeat survey[3] can be profitably amalgamated with the ongoing District Level Household Surveys and other data sources like the Sample Registration Surveys to garner information for action on several of the above mentioned parameters excluding serum retinol. Of these, mortality estimates would be of primary importance. We propose that the National Vitamin A Supplementation Programme can be immediately withdrawn in districts with infant mortality rate lower than 75/1000 live births and under-5 mortality rate of lower than 100/1000 live births. Thus on the basis of 2012 estimates[2], over 87 per cent of the 597 districts should be withdrawing this programme (under five mortality above 80/1000 live births in 80 districts only). Obviously, if any of these pockets have documented evidence of high prevalence of night blindness or xerophthalmia, the withdrawal could be delayed. These proposed criteria need to be considered and debated at the earliest by the stakeholders including technical experts under the auspices of the Ministry of Health and Family Welfare.

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References

1. World Health Organization. Serum retinol concentrations for determining the prevalence of vitamin A deficiency in populations. Vitamin and Mineral Nutrition Information System. Geneva, World Health Organization, 2011 (WHO/NMH/NHD/MNM/11.3). Available from: *http://www.who.int/vmnis/indicators/retinol.pdf*, accessed on January 2, 2014.
2. Ram U, Jha P, Ram F, Kumar K, Awasthi S, Shet A, *et al*. Neonatal, 1-59 month, and under-5 mortality in 597 Indian districts, 2001 to 2012: estimates from national demographic and mortality surveys. *Lancet Global Health* 2013; *1* : e219-26.
3. National Nutrition Monitoring Bureau. *Diet and nutritional status of rural population, prevalence of hypertension and diabetes among adults and infant and young child feeding practices - Report of third repeat survey*. NNMB Technical Report Number 26. Hyderabad; National Institute of Nutrition; 2012.