# *Letters to the Editor*

## Methods for Mass Screening of Vitamin A Deficiency

The recent article on this topic(l) suffers from a few methodological and observational shortcomings. The selection of controls does not provide extra information on identification of the best method for mass screening of vitamin A deficiency in the field. The false positivity rate of Rose Bengal stain test (RBST) as calculated from *Table I* of the article is 74.6%, thereby indicating that few children among the control group would be having RBST positive results. Similarly, the false positivity rate of Conjunctival Impression Cytology (CIC) is 47.9%. Moreover, since CIC can predict preclinical vitamin A deficiency among the apparently normal children it is expected to find abnormal CIC results among control group. Hence the authors contention of 100% negative RBST and normal CIC findings among the control group is not convincing.

It would have been much more informative if the authors had calculated sensitivity and specificity of other methods like dietary assessment and clinical findings also. A previous study reported similar results between clinical findings and RBST(2). Although CIC has been the most acceptable method for field detection of early vitamin A deficiency, its practicability is often limited by its cumbersome and time consuming nature of sample collection, preservation, staining and microscopic examination which needs skilled and trained personnel. Moreover, the cost of performing CIC is more than administration of one dose of vitamin A which raises a doubt about the cost effectiveness of the method. For developing countries with limited resources, clinical signs and symptoms as recommended by the WHO(3) seem to be most appropriate. Since vitamin A prophylaxis is routinely given to children under 3 years of age in India, screening for vitamin A deficiency may not be of much use in this age group.

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3. Vitamin A deficiency and Xerophthalmia. Report of a Joint WHO/USAID Meeting. Geneva, World Health Organization. WHO Tech Rep Ser No. 590,1976.

## Reply

We are grateful to Dr. Singh for the interest in our publication. In response, we have the following comments to offer:

The article compares the results obtained by three different methods, namely, RBST, CIC and serum vitamin A used for the assessment of vitamin A deficiency in 196 children *(Table I)* who were randomly selected from 2156 children whose dietary nutrient intake was

below RDA level and vitamin A intake was between 60-65% of RDA (refer page 224, Results para 1). The control group children were healthy and had serum vitamin A levels between 30-50 mg/dl (refer page 225 of the article). These children did not show a positive RBST or abnormal CIC in the study.

For developing countries, it is essential to detect vitamin A deficiency in children in the preclinical stage only. If we wait for clinical signs and symptoms to appear, the disease may advance to a stage of blindness. The total cost and burden on the society to support such blind persons will be tremendously higher than the cost incurred on CIC test to detect the preclinical vitamin A deficiency state.

Dr. Singh states that vitamin A prophylaxis is routinely given to children under 3 years of age in India. However, in the study area, the children were not the beneficiaries of this prophylactic programme. It is quite possible that several such areas must be existing in India where these 'prophylaxis' programmes have not been implemented. In such areas, it becomes more important to do mass screening and try to help to save the children form worst consequences of the deficiency before it is too late.

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## Comments

Dr. Bapat's article had focussed on a key issue of public health importance. Subclinical Vitamin A Deficiency (SVAD) in the vulnerable population and the role of CIC in detecting SVAD has earlier been reported from India(l) and abroad. However what needs to be clearly stated is that CIC is only a diagnostic tool for evaluation of epidemiological situation of Vitamin A deficiency in the community and to undertake specific public health measures (including Vitamin A supplementation). CIC should not be regarded as an intervention to screen individual patients for Vitamin A supplementation. It is not only the cost but also the feasibility which limits its use for such purpose. Dr. Bapat's study simply supports the need to intestify the implementation of Vitamin A prophylaxis programme for the vulnerable population, particularly in the slums and underprivileged areas.

One would not refute the results of Dr. Bapat's article but Dr. Singh's remarks and query about normal CIC in 100% controls does raise some questions about the selection of controls. In fact, it was the detection of abnormal CIC in apparently healthy children with no obvious risk factors for Vitamin A deficiency which was highlighted by earlier reports(l,2). So a possibility of selection bias can not be ruled out.

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