

- 2012;129:e1060-3.
3. Gordon CM, Williams AL, Feldman HJ, Sinclair L, Vasquez A, Cox JE. Treatment of hypovitaminosis in infants and toddlers. *J Clin Endocrinol Metab.* 2008;93:2716-21.

4. Emel T, Dođan DA, Erdem G, Faruk O. Therapy strategies in vitamin D deficiency with or without rickets: efficiency of low-dose stoss therapy. *J Pediatr Endocrinol Metab.* 2012;25:107-10.

Methodological Issues in Iodine Deficiency Disorders Survey

This is in reference to the recent article on “Iodine deficiency disorder in children of Ambala, Haryana” [1]. We thank the authors for highlighting an important public health issue; we have the following concerns:

1. *Current irrelevance of the district based iodine deficiency disorders (IDD) survey:* The current district specific IDD guidelines have their historic genesis from the National Goitre Control Program (NGCP) (1962). The ban on the sale of non-iodised salt was based on district level goitre prevalence and was district specific. However, sufficient evidence has been generated since establishing IDD as ubiquitous in all states and geographical regions of India [2,3] and a national level ban on sale of non-iodised salt was implemented in the year 1997. The current district specific IDD survey guidelines lack any epidemiological rationale and cannot be collated to generate state level or national level data as these surveys are done over different time period. Further these guidelines do not conform to the internationally acceptable WHO/ UNICEF/ ICCIDD recommendations.
2. *Use of spot testing kits (STK) for salt iodine content estimation:* The iodine content of salt in the present study was estimated using STK. As the reported sensitivity and specificity of STKs is low [4] the revised guidelines recommend iodometric titration for estimating iodine content of salt.
3. *Details of the method used for urinary iodine estimation:* The authors have reported that they have used iodometric titration for iodine estimation in urine but the prescribed method to estimate urinary iodine as per the guidelines is Sandell-Kolthoff reaction [5].
4. *Need to report median urinary iodine:* In addition to reporting the percentage of individuals above and below a given cut-off value of urinary iodine, the

authors should have also reported the median urinary iodine. The revised indicators prescribed by WHO/ UNICEF/ICCIDD also suggest inclusion of median urinary iodine [5].

KAPILYADAV AND P GIRIDARA GOPAL
Centre for Community Medicine
 AIIMS, New Delhi 110 029, India.
 dr_kapilyadav@yahoo.co.in

REFERENCES

1. Chaudhary C, Pathak R, Ahluwalia SK, Goel RKD, Devgan S. Iodine deficiency disorder in children aged 6-12 years of Ambala, Haryana. *Indian Pediatr.* 2013;50:587-9.
2. Indian Council of Medical Research (ICMR). Epidemiological Survey of Endemic Goitre and Endemic Cretinism, An ICMR Task Force Study; 1989.
3. Pandav CS, Kochupillai N, Karmarkar MG, Ramachandran K, Gopinath P, Nath LM. Endemic goiter in Delhi. *Indian J Med Res.* 1980;72:81-8.
4. Pandav CS, Arora NK, Krishnan A, Sankar R, Pandav S, Karmarkar MG. Validation of spot-testing kits to determine iodine content in salt. *Bull World Health Organ.* 2000;78:975-80.
5. WHO, UNICEF, ICCIDD. Assessment of Iodine Deficiency Disorders and Monitoring their Elimination, 3rd edn. Geneva: World Health Organization. 2007.

REPLY

We thank the authors for raising important methodological issues related to iodine deficiency disorder (IDD) survey. We clarify:

1. The sampling methodology for selection of survey sites by probability proportionate-to-size (PPS) sampling adopted in the present study are in accordance with the revised guidelines of National Iodine Deficiency Disorder Control Program (NIDDCP) [1] and WHO/UNICEF/ICCIDD [2]. This method has been found to be suitable for generating state and national level data [1].
2. For household surveys, qualitative testing of salt using a rapid test kit has been employed successfully to determine overall coverage of iodized salt and to identify geographical gaps in the program. Another

CORRESPONDENCE

advantage of rapid test kits is that they can be used in the field to give an immediate result. However, because rapid test kits do not give a reliable estimate of iodine content, results must be backed up by titration [3]. In the present study, the finding that 88% salt samples were adequately iodized has been made on the basis of iodometric titration only.

3. We estimated urine iodine content at IDD monitoring laboratory at Karnal, Haryana with permission from state IDD control Cell. Sandell Kolthoff reaction was used for estimation of iodine in urine. Iodometric titration was actually used in 10% of the total salt samples for quantitative estimation of iodine. We apologize for the inadvertent error in the manuscript.
4. Median urinary iodine concentration was calculated in the present study as mentioned in the statistical

analysis part of the write up of the article and was found to be 146 $\mu\text{g/L}$.

CHINTU CHAUDHARY
chaudharychintu@gmail.com

REFERENCES

1. Directorate General of Health Services (DGHS). Ministry of Health and Family Welfare, Government of India. Revised Policy Guidelines on National Iodine Deficiency Disorders Control Programme. New Delhi: DGHS, Ministry of Health and Family Welfare, Government of India. 2006;(10).
2. WHO, UNICEF, ICCIDD. Assessment of Iodine Deficiency Disorders and Monitoring Their Elimination, 3rd edn. Geneva: World Health Organisation. 2007.
3. Pandav CS, Arora NK, Krishnan A, Sankar R, Pandav S, Karmarkar MG. Validation of spot-testing kits to determine iodine content in salt. Bull World Health Organ. 2000;78:975-80.