

Assessment of adequately iodized salt

The ICCIDD/GN, WHO and UNICEF have recommended Universal Salt Iodization (USI) as the most cost-effective strategy to achieve optimal iodine nutrition in populations. Although household salt is only part of the total salt supply, the presence of iodized salt in households is commonly used as a quick and easily measurable indicator for monitoring the progress of USI strategies. By convention, salt in households should contain at least 15 ppm (i.e., 15mg iodine per kg salt) to be considered as "adequately" iodized, and the established goal for USI programs is that 90% or more of households should be using adequately iodized salt.

The ICCIDD/GN strongly supports the continued use of the RTK as a tool to assess the presence of iodine in salt in DHS surveys (as per Question 140), but also highly recommends the addition of a test to determine the iodine content in salt based on quantitative testing. The current question, "ASK RESPONDENT FOR A TEASPOONFUL OF COOKING SALT" is used to collect salt specimens for testing by rapid test kit to determine whether iodine is present or not. Spot tests for iodine in household salt with a Rapid Test Kit (RTK) have been part of the DHSs for several years. However, a major limitation of the use of spot tests is that they cannot provide a robust determination of whether salt contains adequate iodine content. Validation studies of the RTK have generated a general consensus that the test can be useful in distinguishing whether a salt sample is iodized or not (i.e. a qualitative test result), but that the RTK is unable to accurately detect the level of iodine in iodized salt that is, determining whether salt is adequately iodized (Pandav CS et al. Validation of spot-testing kits to determine iodine content in salt. Bull WHO 2000; 78(8): 975-980).

In order to provide a measurement of the adequacy of the iodine content in household salt, it is necessary to employ a quantitative method, such as titration or WYD iodine checker, in at least a sub-sample of salt. Over the past few years, several surveys that used an RTK for salt tests of household salt also measured salt samples by a quantitative method and have provided more accurate data that have been important to assess the likelihood that the population is receiving sufficient iodine to meet physiological requirements.

In December 2007, WHO published a revision of the guide for program managers entitled: "Assessment of Iodine Deficiency Disorders and Monitoring their Elimination", putting emphasis on indicators of the iodized salt supply in the population. For determining the iodine content in salt, the guide mentions that the color generated by the RTK test can distinguish between the presence and absence of iodine, but that the test cannot be used for estimating the salt iodine concentration. To estimate the household coverage of adequately iodized salt, therefore, the guide recommends a quantitative method, such as titration or an equivalent method, for salt collected from all, or a sub-sample of, households.

As such, we would like to recommend the following improvements in the way that household salt is tested as part of DHS surveys, including:

- (a) Continue to present results for all household salt tested by RTK as either containing no iodine or some iodine only. Typically, this will be possible for several sub-groups or strata as per DHS design.
- (b) Collect household salt from a sub-sample, systematically, in order to test by a quantitative method. These salt specimens need to be placed in a tightly sealed plastic pouch and transported to a quality- assured laboratory to be subjected to quantitative analysis.
- (c) Present data only at the national level on the proportion of salt containing adequate levels of iodine (> 15 ppm) based on the household salt test results.

File Attachments

1) [Proposed DHS revision - salt by titration.docx](#), downloaded 1022 times

Subject: Re: Assessment of adequately iodized salt
Posted by [Grummer-Strawn](#) on Fri, 04 Apr 2014 14:29:44 GMT

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The Centers for Disease Control and Prevention strongly endorses the proposal of the ICCIDD Global Network. Household coverage with adequately iodized salt is the key programmatic indicator for the Universal Salt Iodization program. The current RTK methodology does not allow creation of this indicator. The proposal here would not add at all to the length of time in the household since the salt sample is already being obtained in the household.

Subject: Re: Assessment of adequately iodized salt
Posted by [cdckms](#) on Fri, 04 Apr 2014 14:46:38 GMT

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First, thanks to DHS for assessing iodine in household salt using the rapid test kit (RTK) for many years - this information has been extremely useful. As proposed by Dr. Gorstein and endorsed by Dr. Grummer-Strawn, what is being recommended is a refinement in the assessment of iodized salt. The RTK is easy to use and inexpensive, but provides qualitative results which need to be interpreted cautiously. A quantitative test assessing the level of iodine in salt provides additional information and the cost of the test is relatively inexpensive. Through use of the quantitative test, the percentage of household salt samples with too little or too much iodine can be estimated and this information used to improve the quality of iodized salt and therefore improve the iodine nutrition status of the population.

Kevin Sullivan

Subject: Re: Assessment of adequately iodized salt
Posted by [odary](#) on Fri, 11 Apr 2014 19:13:03 GMT

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The NUT-Division of USAID endorses keeping the qualitative analysis of iodine in salt at

households in order to provide a yes/not response, and which could be used to estimate coverage of the presence of iodized salt.

We also support the idea to have a quantitative determination of the content of iodine in salt, but not in a sub-sample of salt samples found at households. The important parameter to have is the average content of iodine and not the proportion of salt samples above the cut-off point of 15 ppm; the latter is more a quality control indicator. We propose that one (or two) composite samples per cluster are prepared mixing equal amounts of single salt samples requested from each household that has salt at the moment of the survey. The number of salt samples to be analyzed is going to be small, and the result equally valid as that obtained from the chemical analysis of many single samples.
