

Assessment of Iodine Intake: Foods and Supplements

April 22-23, 2014

Executive Summary

The Office of Dietary Supplements (ODS), National Institutes of Health (NIH), began an iodine initiative in 2011 to provide new tools to advance investigator-initiated research relevant to iodine status and its relation to health outcomes. The ODS has been working with other government groups, including the U.S. National Institute of Standards and Technology (NIST) in an effort to improve existing analytical methods and develop new approaches to facilitate the evaluation of iodine status, with an emphasis on vulnerable population groups such as pregnant women.

Presentations and discussions from the Assessment of Iodine Intake: Foods and Supplements Workshop focused on exposure; specifically the measurement of iodine intake from both foods and dietary supplements. The United States is one of the few developed countries that does not have mandatory iodine fortification. This was the first in a series of three iodine-related workshops sponsored by the ODS. The second workshop, to be held July 22-23, 2014, will focus on indices of status outside of urinary iodine concentration (the most widely used index of status), including those related to thyroid function. Workshop participants will also discuss the development and use of standard reference methods and materials in addition to concepts fundamental to the quality of laboratory data. The third workshop, scheduled for September 22-23, 2014, will consider issues of iodine status in pregnant women, the potential impact of sub-optimal status on pregnancy outcomes and child development, and suitable study designs for addressing iodine status concerns in regions with differing levels of risk.

The first day of this workshop featured presentations grouped into two sessions: (1) Iodine in Foods and Supplements, and (2) Iodine Fortification. The second day featured breakout sessions and roundtable discussions led by Workshop Chair Dr. Christine Swanson (ODS, NIH) on the use of iodine-containing supplements by pregnant women in the United States, iodine food composition data, and iodine intake assessment. Major themes, research needs, and suggestions for future research that arose from the presentations and discussions appear below.

Use of Iodine-Containing Supplements by Pregnant Women in the United States

- Information on sales, label content, analytical content, and analytical variability of prescription prenatal supplements is needed.
- More and better information on the iodine content of food is needed (particularly in light of the fact that pregnant women have been found to have the same urinary iodine concentrations whether or not they are taking prenatal vitamins containing iodine).
- A better understanding of the interplay between food intake and urinary iodine concentrations is also a need.
- Some participants felt that an over-the-counter (OTC) prenatal supplement standard reference material (SRM) is needed. Others felt that any decision regarding the development of an SRM for OTC prenatal supplements should wait until additional information on their content is obtained and analyzed.

- Little is known about iodine levels in breast milk among breastfeeding mothers who continue to take iodine-containing vitamins.
- Another area for potential future research is ascertaining how much of the iodine in prenatal vitamins deteriorates over time.

Iodine Food Composition Data

- Ensuring that the needs of the U.S. Department of Agriculture's (USDA) Nutrient Data Laboratory (NDL) and the U.S. Food and Drug Administration's (FDA) Total Diet Study (TDS) teams was emphasized.
- The TDS no longer analyzes selenium, magnesium, copper, zinc, phosphorous, calcium, and fluoride. TDS' current methods could detect these components, and if there is enough support from the food composition community, the TDS could resume analyzing them. Workshop participants expressed support for the collection and analysis of these data.
- USDA's Agricultural Research Service has historical food specimens that are stored and could be used for analyses of trends in iodine or other nutrient level content.
- Additional research needs include understanding the potential degradation of iodine in iodized salt and gaining a better understanding of the variances in iodine levels between and among different foods.

Iodine Intake Assessment

- It was suggested that NHANES data be used to examine the percent of the population below the estimated average requirement (EAR) for intake and then further examine a subset of this population to determine the percent of urine measures below the cutpoint.
- Additional could work focus on the percent above the tolerable upper intake level (UL), using the percent UL and a biomarker UL, as well as an examination of the prevalence of intakes above those two types of cutpoints.
- Another effort may involve addressing what percentage of iodine intake comes from supplements vs. foods vs. salt (the current prevailing assumption is that salt represents the major contributor of iodine). This exercise might help put the importance of food composition variability into perspective.
- Another potential topic for future work involves identifying what questions would be most useful in a food intake survey. Food composition tables likely could be incorporated into NCI's ASA-24 tool (which currently has no questions on salt/iodine intake).
- The NIH is funding a number of very large cohorts, some of which do not have the necessary expertise to develop salt- and iodine-related questions. If a list of standardized questions that can be combined across surveys is developed, it could be provided to the groups leading these cohorts for use.