First national study shows Jamaica is iodine sufficient
Jamaica is an island nation in the Caribbean Sea, located 190 km west of Haiti. It is the third largest island of the Greater Antilles, and it is home to a population of 2.9 million. A former British colony, Jamaica gained full independence in 1962. The prevailing climate is tropical on the coast and semiarid inland, and the island lies in the Atlantic hurricane belt, which annually threatens the country’s food and nutrition security.

Mostly reliant on locally grown produce in the past, nowadays Jamaica imports most of its food either as raw or semi-processed ingredients. New food consumption patterns (1) have led to an increase in the rates of overweight and obesity, but at the same time, pockets of undernutrition persist in areas where access to food is limited by high levels of unemployment, poverty and income inequality, and inequitable access to resources (1,2). These differences have led to the emergence of the “double-burden” of malnutrition, which happens when both under and over-nutrition coexist in the same community. Previous micronutrient surveys have identified iron deficiency anemia and vitamin A deficiency as public health problems (3). However, no surveys have been done to assess iodine deficiency. Jamaica has one of the highest levels of fish consumption per capita in the Americas (27.1 kg/year in 2013, of which around 70% were imported) (4), which may mitigate the risk of iodine deficiency in the population. Jamaica has no official IDD prevention and elimination program or policy regarding salt iodization (5).

The national standard specifies that salt labelled 'iodized' shall contain not less than 0.006% and not more than 0.01% by weight of potassium or sodium iodide or iodate (6). While no recent surveys exist, according to the World Bank, 100% of households in Jamaica had access to iodized salt in 1999 (7).

Caribbean Island Urinary Iodine Survey

In January this year, the Iodine Global Network and the Swiss Federal Institute of Technology (ETH) Zurich, in partnership with the Ministry of Health and the Ministry of Education, the Pan American Health Organization (PAHO), UNICEF, and The University of the West Indies, completed the first national iodine survey in Jamaica to determine the iodine status of the population, increase population knowledge of the importance of iodine to health, and to fill the data gap in the global map of iodine nutrition. This cross-sectional, school-based survey was part of an all-Caribbean island study of urinary iodine and sodium (dubbed “CRUISE”).

The study was led by Prof. Michael Zimmermann, Chair of the Iodine Global Network, Dr. Audrey Morris (PAHO), and Prof. Michael Boyne (The University of the West Indies).

Urine samples for analysis were collected from 445 schoolchildren (aged 5–13 years), recruited from four primary schools distributed throughout the country. Of these, two schools were in larger urban areas on the north and south coast (Montego Bay and Kingston), one was in a large inland town (Mandeville) and one school was in a rural area (Bull Savannah).

The children’s height and weight were measured. A repeat urine sample was collected from approximately a third of the children (n=144) on the following day to estimate the habitual iodine intakes from an adjusted UIC distribution, and on this basis, calculate the proportion of individuals with usual iodine intakes below or above the estimated average requirement (EAR). Using the EAR cut-point method, iodine intake is deemed to be adequate when 97% of individuals in the population meet the EAR. Household salt samples were collected from a sub-group of one-third of the children to measure iodine concentration, and a brief 24-hour recall food questionnaire was administered to identify the common dietary sources of iodine and sodium in Jamaica.

The urine and salt samples were analyzed using the Sandell-Kolthoff colorimetric method at the Human Nutrition Laboratory, Swiss Federal Institute of Technology (ETH) Zurich.
The population median UIC was 238 µg/L, and less than 1% of children had a UIC <50 µg/L, which confirms that school-age children in Jamaica have optimal iodine intakes (8). The EAR cut-point analysis based on the adjusted distribution confirmed this result: only 1.0% of the 5–8 year olds (n=207) and 1.2% of the 9–13 year olds (n=222) had iodine intakes below the EAR. The median iodine concentration in household salt (n=127) was 15.5 mg/kg, which meets the WHO recommended level of at least 15 mg/kg.

**Sustaining optimal iodine intakes**

Despite the lack of a national policy on salt iodization, the findings of this first national survey suggest that iodine deficiency is currently not a public health concern in Jamaica. Adequate iodine intakes are particularly important during pregnancy to support optimal development of the fetal brain. The survey did not provide information on iodine intakes in pregnant or reproductive-age women, who may have different dietary preferences, and often have lower iodine intakes than schoolchildren (9). It may be prudent for the government to adopt a policy supporting iodized salt, which could protect pregnant women in Jamaica against a future decline in iodine intakes as a result of changing food preferences, influx of imported foods produced with non-iodized salt, or threats to food security. As steps are taken to limit population sodium intakes to reduce high blood pressure, putting in place salt iodization standards could ensure that iodine levels in the salt remain optimal as salt consumption decreases.

**References**