

Editorial

Reaching optimal iodine nutrition in pregnant and lactating women and young children: programmatic recommendations

The United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) Joint Committee on Health Policy recommended Universal Salt Iodization (USI)¹ as a safe, cost-effective and primary sustainable strategy to ensure sufficient intake of iodine by all individuals¹. It was also suggested to consider temporary iodine supplementation in areas of severe iodine deficiency where USI cannot be rapidly implemented. Although there has been considerable progress in the prevention and control of Iodine Deficiency Disorders (IDD) globally – over 70% households now use adequately iodized salt – it is estimated that there are still about 39 million infants born each year unprotected from the risk of cognitive damage from iodine deficiency.

Because of this and based on new evidence and lessons learned within the last decade, it appears that the most susceptible groups, pregnant and lactating women and children less than two years of age, might not be adequately covered by iodized salt where USI is not fully implemented^{2–4}. A fetus is totally dependent in early pregnancy on maternal thyroxine for normal brain development. Adequate maternal dietary intake of iodine during pregnancy is essential for maternal thyroxine production and later for thyroid function in the fetus. If iodine insufficiency leads to inadequate production of thyroid hormones and hypothyroidism during pregnancy, then this is likely to result in irreversible fetal brain damage^{5,6}.

In order to address this issue, the WHO convened a technical consultation on the prevention and control of iodine deficiency in pregnant and lactating women and in children less than two years old. The consultation, held on 24–26 January 2005, Geneva, Switzerland, made recommendations to ensure optimum iodine nutrition among these groups and is reported in this issue⁷. As a follow up to the meeting, and in order to provide programmatic guidance to implement these recommendations within the country programme planning process, UNICEF and WHO held a joint meeting on 15–16 November 2005 at UNICEF Headquarters, New York, USA. This editorial presents the conclusions of the joint UNICEF/WHO meeting.

The primary strategy for sustainable elimination of iodine deficiency remains USI⁸. In some countries and

areas, however, salt iodization programmes may not be implementable, thus resulting in insufficient access to iodine for some groups of the population^{2,9,10}. In these cases, besides strengthening the USI programmes, additional complementary strategies such as iodine supplementation should be considered by the country to ensure optimal iodine nutrition for these susceptible groups^{2,9,11,12}. As the first step, countries need to assess and categorize the level of implementation of salt iodization programmes and, based on this analysis, should revisit the strategy for IDD control, as necessary.

Categorization of country according to level of implementation of salt iodization programmes

Countries or areas of countries can be categorized into four groups based on the proportion of household use of iodized salt at the national and sub-national levels. The joint consultation concluded that it is preferable for highly populated countries to use disaggregated data and categorize areas of the country according to sub-national (region, province, district) data:

Group I: Countries or areas of countries in which more than 90% of the households have access to iodized salt.

Group II: Countries or areas of countries in which 50–90% of the households have access to iodized salt.

Group III: Countries or areas of countries in which 20–50% of the households have access to iodized salt.

Group IV: Countries or areas of countries in which less than 20% of the households have access to iodized salt.

Guidelines for decision making on when and how to plan for additional iodine intake in pregnant and lactating women and children 7–24 months of age

Group I: The countries in this group should sustain the achievement of USI and periodically reassess the salt iodization programme and population iodine status.

Group II: The countries in this group should make efforts to accelerate salt iodization based on the existing operational guidelines^{8,13}. If no progress in scaling up is being made within two years, then the feasibility of increasing iodine intake in the form of a supplement or iodine fortified foods by the most susceptible groups—pregnant and lactating women and children 7–24 months

¹Universal salt iodization (USI) means the iodization of salt for consumption by both humans and animals

of age—would need to be assessed, using the recommended strategy for the countries of group III.

Group III: The countries in this group will need to assess the feasibility of increasing iodine intake in the form of a supplement or iodine fortified complementary foods by the most susceptible groups, as described in the following programmatic steps.

- a. Assess population iodine nutrition status, household iodized salt coverage (preferably disaggregated) and salt iodization programmes in order to identify a national or sub-national problem. An initial rapid assessment will be needed for advocacy and for future monitoring, if no assessment has yet been made. The methodology of assessments is described in the ICCIDD/UNICEF/WHO guidelines on Assessment of Iodine Deficiency Disorders and Monitoring their Elimination¹³.
- b. Develop new plans to strengthen salt iodization that include increasing political commitment, advocacy, capacity building of the salt industry for production and quality assurance, adoption and enforcement of appropriate regulations/legislation, and an effective iodized-salt monitoring system at production (or importation), retail and community levels.
- c. The feasibility of increasing the iodine intake of susceptible groups in the form of supplements or iodine fortified food, will need to be explored as a temporary measure while strengthening the salt iodization programme. In areas of moderate IDD (median urinary iodine less than 50 µg/L or total goitre rate more than 20%), the objective should be to provide additional iodine in the form of a supplement to all pregnant and lactating women, and in the form of supplement or iodine fortified complementary food for children of 7–24 months of age.
- d. Assessing the feasibility of providing additional iodine should include: (i) costing of supplementation; (ii)

existing channels for distribution to reach the target groups; (iii) likely duration of supplementation; and (iv) potential compliance.

Group IV: Each country in this group should assess the current situation of its salt iodization programme to identify national or sub-national problems and to update its strategies and action plans. The most vulnerable groups, pregnant and lactating women, should be supplemented with iodine and children 7–24 months of age should be given either a supplement or complementary food fortified with iodine until the salt iodization programme is scaled up.

Guidelines for decision making on when and how to plan for additional iodine intake in pregnant and lactating women and children 7–24 months of age in specific situations

Irrespective of where countries or areas of countries are categorized there are specific situations, such as in emergencies, among displaced people and geographically remote areas where additional iodine intake should be considered. If iodized salt is not accessible in these specific situations, increasing iodine intake is required in the form of iodine supplements for pregnant and lactating women and a supplement or complementary food fortified with iodine for children 7–24 months of age. In cases where it is difficult to reach pregnant women, supplementation to all women of reproductive age is advised.

Recommended dosages of iodine supplement

The consultation agreed on two main approaches for administering iodine supplementation on a daily basis or an annual basis using an iodized oil preparation, and endorsed the dose recommendations of the WHO as described in Table 1⁷.

Table 1 Recommended dosages of daily and annual iodine supplementation

Population group	Daily dose of iodine supplement (µg/d)	Single annual dose of iodized oil supplement (mg/y)
Pregnant women	250	400
Lactating women	250	400
Women of reproductive age (15–49 y)	150	400
Children < 2 y ^{2,3}	90	200

² For children aged 0–6 months, iodine supplementation should be given through breast milk. This implies that the child is exclusively breastfed and that the lactating mother received iodine supplementation as indicated above.

³ These figures for iodine supplements are given in situations where complementary food fortified with iodine is not available, in which case iodine supplementation is required for children of 7–24 months of age.

Monitoring

Monitoring of IDD prevention and control programmes is crucial, whether they are based on fortification or supplementation, in order to ensure that additional iodine intake is both effective in reducing the deficiency while preventing excessive intake that may lead to adverse health consequences. The monitoring process should include the assessment of coverage and iodine nutrition status. The detailed methodology of monitoring is given in ICCIDD/UNICEF/WHO guidelines¹³.

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