

Micronutrient Forum
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Control of Iodine Deficiency in Pregnant and Lactating Women, and in Children Less than 2 Years

Report of
a WHO Technical consultation

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Background

- **There are three crucial periods to ensure an adequate iodine intake during early child development:**
 - Pregnancy, especially during the first half;
 - The first six months of life;
 - Throughout the period of complementary feeding.
- **Concern for iodine nutrition during these critical periods of early life led WHO to convene a Technical Consultation to examine the iodine status and iodine needs of the three key groups: pregnant women, lactating women, and children less than two years old.**



Objectives

- **To review:**
 - The functional consequences of iodine deficiency;
 - Requirements for iodine;
 - Indicators for an adequate iodine nutrition status;
 - Strategies to eliminate IDD.
- **In pregnant and lactating women, and children less than two years old.**



Preparatory Process

- **WHO commissioned review papers on:**
 - Iodine requirements during pregnancy, lactation and the neonatal period;
 - Indicators of optimal iodine nutrition during pregnancy, lactation and the neonatal period;
 - Iodine nutrition during pregnancy;
 - Iodine deficiency and brain development;
 - Impact of salt iodization or iodine supplementation on iodine status during pregnancy, lactation and infancy.
- **These papers were presented during the consultation and served as a basis to develop recommendations.**



Recommendations



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Iodine Requirements

- Because of the lack of data on what comprised a *sufficient* intake, the Consultation estimated the needs of each group by applying what is known about:
 - The efficiency with which iodine is absorbed from the gut,
 - The estimated metabolic needs,
 - The typical daily losses in the faeces and urine, taking into account - in pregnant women - increased glomerular filtration.



Iodine Requirements in Pregnant and Lactating Women

- The current requirements for iodine is increased from 200 $\mu\text{g}/\text{day}$ to 250 $\mu\text{g}/\text{day}$.
 - To meet the requirements of the fetus and the mother during pregnancy.
 - To ensure that the infant gets enough iodine from breast milk to build reserves in the thyroid gland during lactation.
- A daily intake greater than 500 $\mu\text{g}/\text{day}$ is not recommended
 - As it would not provide any additional benefit for health and theoretically may be associated with impaired thyroid function.
 - However the scientific evidence for this is weak because the risk is related to the history of iodine nutrition in the specific population before the correction of iodine deficiency, and the risk is greater in formerly iodine deficient populations.



Iodine Requirements in Children 0-24 Months

- The previously recommended iodine intake of 90 $\mu\text{g}/\text{day}$ remains the same.
- There was no attempt to recommend iodine intake for preterm infants because of the lack of data.



Indicators to Assess Iodine Status

- **Urinary iodine**
 - Median UI is the best indicator to use in population surveys to assess iodine nutrition
 - It has been shown to be a reliable marker of recent dietary intake: 90% of iodine absorbed is excreted in urine.
 - It should not be used for the purposes of individual diagnosis and treatment.
 - Median UI does not provide direct information about thyroid function.
 - However, a low median UI indicates a risk of developing thyroid disorders.
- **Serum Thyroid Stimulating Hormone (TSH)**
 - An elevated serum TSH reflects an insufficient supply of maternal and/or foetal thyroid hormone to the fetal brain and indicates a risk of irreversible brain damage.
 - The use of serum TSH as an indicator needs further validation:
 - To standardize when and how to collect blood samples after birth,
 - To establish a threshold to interpret the results.



**Strategies
to Control Iodine Deficiency
in Pregnant and Lactating Women,
and in Children Less than 2 Years**



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More than 90% of Households Have Access to Iodized Salt

- **Status**
 - Salt iodization programme has been effective for more than 2 years.
 - Median UI > 100µg/l.
- **The population is iodine sufficient**
 - No need for iodine supplement.
- **Countries should sustain USI and periodically reassess salt iodization programme.**



Approaches to give Additional Iodine Intake where Salt Iodization Coverage is <90%

- **Pregnant and lactating women should be given iodine supplement**
- **Children aged 0-6 months should get their additional iodine through breast milk**
 - This implies that the child is exclusively breastfed and the mother received iodine supplements during pregnancy or lactation.
- **Children 7 - 24 months should be given additional iodine**
 - Preferably through complementary foods fortified with iodine
 - Iodized supplement if fortified complementary foods are not available.
- **Women of child-bearing age**
 - Feasibility of giving iodine supplement should be explored
 - In order to allow them to start pregnancy with enough stored iodine to meet both their own needs and the needs of their foetus.



20- 90% of Households Have Access to Iodized Salt

- **Status**
 - Not all salt is iodized, distribution of salt is uneven.
 - Median UI between 20µg/L and 100µg/L.
- **Iodine intakes are insufficient**
 - To meet iodine requirements.
 - To protect the fetus and young child against adverse effects of iodine deficiency, especially on brain development.
- **Measures should be taken to achieve USI**
 - Household coverage: 50-90%.
 - Strengthen salt iodization programme and if no progress after two years, give additional iodine to susceptible groups.
 - Household coverage: 20-50%.
 - Reassess salt iodization programme and develop new plans to strengthen the programme.
 - If no progress after 2 years, susceptible groups should receive additional iodine.



Less than 20% of Households Have Access to Iodized Salt

- **Status**
 - Iodized salt is not available or to a negligible extent.
 - Median UI <20µg/L.
- **Iodine intakes are insufficient**
 - Susceptible groups – pregnant and lactating women, and children below 2 years - are at high risk of IDD.
 - Iodine supplements should be given to these groups.
- **Meanwhile,**
 - Current situation of salt iodization programme should be assessed to identify national or sub national problems and strategies and
 - Action plans should be established.



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