

Editorial

Sustainable Elimination of Iodine Deficiency Disorders: An essential maternal and child health intervention

Iodine deficiency is one of the most common micronutrient deficiencies, and has a pivotal role in the growth, development and survival of children. Pregnant and lactating women are at increased risk of iodine deficiency disorders (IDD) as during pregnancy and lactation the requirement of iodine is increased to meet the needs of both mother and child. Iodine deficiency during the critical 'thousand days' period, i.e. from conception to the first two years of life leads to recurrent abortions, stillbirths, increased neonatal and infant mortality and irreversible brain damage in the child.¹ According to epidemiological studies, children born in severely iodine-deficient areas have an intelligence quotient (IQ) 13.5 points less than those born in iodine-sufficient areas.² Recent research has shown that even mild iodine deficiency during pregnancy affects cognitive development in children.^{3,4} Thus, optimal and sustained iodine nutrition, especially during pregnancy and early childhood, is essential for optimal maternal and child health (MCH).

MCH is one of the foremost global health commitments and has been enunciated in the Millennium Development Goals (MDG) 4 and 5. Though MCH has shown considerable improvement globally, the rate of decline is not enough to achieve the target by 2015.^{5,6} There is also regional variability in childhood and maternal morbidity and mortality rates in India.

Universal salt iodization (USI) has been accepted globally as the main strategy to address IDD and was endorsed by WHO/Unicef in 1994.⁷ Salt iodization was also rated as one of the top three prioritized solutions for global challenges by the Copenhagen Consensus in 2008, which analysed the world's problems and proposed cost-efficient solutions to mitigate the negative consequences of those problems.⁸ Salt iodization has been found to have high cost-benefit ratios (1:81).⁹ In the child and maternal malnutrition series of the *Lancet* too, USI and optimal iodine nutrition of pregnant women were identified among the most important nutrition interventions with a major impact on MCH.¹⁰ Initiation of a salt iodization programme has also been shown to improve the IQ of children born in iodine-deficient regions. A study from the Terai region of Uttar Pradesh assessing the IQ of children in a school reported an improvement after initiation of a salt iodization programme.¹¹ Improvement in cognitive function after iodine supplementation in iodine-deficient children has also been reported from elsewhere.¹² A recent estimate suggests that a one-point IQ improvement contributes to 0.11% growth in gross domestic product (GDP) at the national level.¹³ Thus, elimination of IDD, with an improvement of 13.5 IQ points, can potentially contribute to 1.5% growth in GDP.

Control of IDD has been a public health success story in India in 1962. India was one of the first countries to launch the National Goitre Control Programme (NGCP). It was renamed the National Iodine Deficiency Disorders Control Programme (NIDDCP) in 1992 and USI was adopted as the primary strategy for sustainable elimination of IDD. India has made tremendous progress in the achievement of USI. The household coverage of adequately iodized salt in India increased from 49% in 1998-99 to 71% in 2009. In 2009, 91% households were consuming salt with some iodine and only 9% households were consuming non-iodized salt.¹⁴

The USI target of >90% households consuming adequately iodized salt is within striking reach in India. However, the last mile is yet to be traversed. Despite the progress,

every year 8 million babies in India are born unprotected from iodine deficiency. The National Family Health Survey-3 (NFHS-3) data suggest there is gross disparity in household coverage of adequately iodized salt with lower wealth index quintiles having poorer access. According to the data available from the Ministry of Health and Family Welfare, 303 of 365 districts surveyed are endemic for IDD.¹⁵ We need to address the following to successfully traverse the last mile in achieving USI:

1. *Demand generation for iodized salt:* The focus of the NIDDCP has been on ensuring production of an adequate quantity of iodized salt in India to achieve USI. However, to increase the coverage further with adequately iodized salt and to sustain it, the focus should be shifted to advocacy to generate demand for iodized salt, especially among vulnerable sections of society. Awareness about IDD should be part of the information, education and communication (IEC) campaigns on MCH. Involvement of health and allied functionaries such as the accredited social health activists (ASHAs), multipurpose health workers and *anganwadi* workers and the use of village health and nutrition days (VHNDs) can help in promoting advocacy for iodized salt at the community level.
2. *Strengthening supply chain of iodized salt:* Intervention on the supply side to ensure availability of adequately iodized salt to consumers is another crucial element to achieve USI and sustainable elimination of IDD. Introduction of iodized salt in the public distribution system (PDS), integrated child development services (ICDS), mid-day meal scheme (MDS) and other government-funded food safety programmes would help in ensuring the supply of adequately iodized salt to the most vulnerable sections of society. Iodized salt should be included in the food basket in the recently promulgated National Food Security Act, 2013. There is also a need to strengthen regulatory monitoring through Food Safety and Standards Authorities in the state.
3. *Strengthening monitoring of status of IDD and USI:* Up-to-date data on the status of IDD and USI at the national and subnational level is sparse in India. Data on endemicity of districts are based on surveys conducted over the past 50 years while data on the coverage of iodized salt is based on periodic sample surveys. There is need for effective monitoring for planning effective and efficient programme interventions. Under the National Rural Health Mission (NRHM), ASHAs are being mandated for community monitoring of salt iodization. Inclusion of indicators on IDD in review meetings of NRHM at all levels including in the review meetings of the Central Council of Health will help in achieving better programme results.
4. *Strengthening implementation of the NIDDCP and modification of the fund-flow mechanism:* Although the NIDDCP receives 100% funding from the Central Government, its implementation is tardy, with most state IDD cells not functioning properly. The NIDDCP is a vertical programme with no convergence with other health programmes. Moreover, the funds allocated for the programme are inadequate to carry out the activities outlined in the programme guidelines. The inadequate budgetary allocation is compounded by under-utilization of funds allocated for NIDDCP. As per the Annual Report, Ministry of Health and Family Welfare, NIDDCP expenditure for the year 2011–12 was only 44% of the total allocated funds.¹⁵ The main reason for this under-utilization, as stated by state-level stakeholders, is procedural delays in accessing the allocated funds. Timely release of allocated funds can help in strengthening programme activities.

These issues can be effectively addressed if IDD is mainstreamed as an essential MCH intervention. Improvement in iodine nutrition among pregnant women and children will enhance the cognitive potential of millions of children, thereby improving our intellectual and financial productivity. The up-scaling and mainstreaming of IDD as a critical component of the MCH programme will not only strengthen implementation of the NIDDCP programme at the national and state levels but also lead to improvements in MCH. Addressing IDD will also contribute to progress towards achieving MDG 4 and 5. By adopting the 'mission' approach, repositioning of IDD as an MCH component and allocation of optimal resources, India can achieve and should achieve USI by 2015 and move towards sustainable elimination of IDD as a public health problem.

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