

## Iodine deficiency in pregnant women in the UK: the costs of inaction

Maternal iodine deficiency during pregnancy is associated with impaired child cognition.<sup>1,2</sup> Pregnant and lactating women need increased iodine intake because of increased thyroid hormone synthesis and renal iodine loss during pregnancy, transfer of iodine to the fetus, and required concentration of iodine in breastmilk.<sup>1</sup> These increased dietary needs are incorporated in nutritional recommendations from WHO and the European Food Safety Authority,<sup>3,4</sup> but not in UK dietary reference values, which were last updated in 1991.<sup>5</sup>

Salt iodisation has been the mainstay of worldwide iodine deficiency prevention efforts. However, iodised salt is not widely used in the UK. Dairy foods are the major UK source of iodine.<sup>6</sup> Iodine is present in cows' milk because of the iodine in cattle feed and the use of iodophor cleansers by the dairy industry; it is not added to milk as an intentional public health measure. Regional studies<sup>6</sup> have shown mild-to-moderate iodine deficiency in pregnant women in the UK.

Although one trial is investigating the effects of iodine supplementation on maternal and child thyroid function and child development (NCT00791466), until now no completed randomised clinical trials have assessed the effects of maternal iodine supplementation on child cognition in mildly-to-moderately iodine-deficient regions. Because review boards have disagreed about whether a placebo group is ethically acceptable, the ideal clinical trial might not be possible.

In *The Lancet Diabetes & Endocrinology*, Mark Monahan and colleagues<sup>7</sup> present a compelling economic argument in favour of iodine supplementation for pregnant and lactating women in the UK. Their cost-effectiveness analysis identified that supplementation in tablet form would be cost saving from health service (saving £199 per woman) and societal perspectives (saving £4476 per woman), with a net gain of 1.22 IQ points in the child. The cost-effectiveness of salt iodisation and other food fortification strategies was not evaluated. Although cost-effectiveness analyses inherently need some speculation, the model assumptions used were conservative, and the findings were robust to sensitivity analyses.

What should UK public health authorities do with these data? Reliance on adventitious and unmonitored sources of iodine nutrition is not working. An urgent need exists to protect unborn children in the UK; the study by Monahan and colleagues shows the costs of inaction in terms of both economics and lost human potential. Faced with similar circumstances, Australia and New Zealand both opted to mandate the use of iodised salt in breads, and to recommend iodine supplementation for pregnant and lactating women.<sup>8</sup> The European Thyroid Association has recommended that women who are pregnant, lactating, or planning a pregnancy should ingest daily supplements containing 150 µg iodine.<sup>9</sup>

The optimum long-term approach to UK iodine nutrition remains uncertain. The study by Monahan and colleagues assumed that iodine supplementation would be started preconception,<sup>7</sup> but this might be unrealistic because about half of UK pregnancies are unplanned. However, although food fortification strategies would likely take time to develop, iodine supplementation is available now. Updating of dietary reference values to be in line with international standards, recommendation of iodine supplements for pregnancy and lactation, and development of a national plan to monitor urinary iodine concentrations in pregnant women should be priorities.

*Elizabeth N Pearce*

Section of Endocrinology, Diabetes, and Nutrition, Boston University School of Medicine, Boston, MA 02118, USA  
elizabeth.pearce@bmc.org

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