



## ORIGINAL RESEARCH – QUANTITATIVE

# Knowledge and practices regarding iodine supplementation: A national survey of healthcare providers



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## ARTICLE INFO

## Article history:

Received 16 June 2016

Received in revised form 13 July 2016

Accepted 16 August 2016

## Keywords:

Iodine supplementation

Pregnancy

Healthcare providers

Knowledge

Practices

## ABSTRACT

**Background:** Little is known of healthcare providers' awareness and implementation of the National Health and Medical Research Council's recommendation regarding iodine supplementation during pre-conception, pregnancy and lactation.

**Aim:** To assess knowledge and practices of Australian healthcare providers in relation to the National Health and Medical Research Council's iodine supplement recommendation.

**Methods:** Obstetricians, gynaecologists, general practitioners, dietitians and midwives were recruited through their relevant professional bodies to participate in an online survey.

**Findings:** The survey was completed by 396 healthcare providers Australia-wide. While 71% of healthcare providers were aware of the National Health and Medical Research Council's recommendation for iodine supplementation, fewer were aware of the recommended dose (38%) or duration (44%). Seventy-three percent of healthcare providers recommended iodine supplements in pregnancy, 56% when planning pregnancy and 52% during lactation. The main reasons for not recommending iodine supplementation included belief there was no need for iodine supplements due to mandatory iodine fortification of food (28%) and unawareness of the recommendation (25%). Awareness of the recommendation was positively associated with recommending iodine supplements while length of practice, time spent per consultation, age or area of practice were not associated with recommending iodine supplements.

**Discussion and conclusions:** There is a need to improve healthcare providers' knowledge of and adherence to the National Health and Medical Research Council's iodine supplement recommendation. Strategies within antenatal and postnatal services, as well as public health initiatives, are required to improve the knowledge and practices of healthcare providers.

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## Summary of relevance:

**Problem or issue**

Recently NHMRC has recommended routine iodine supplementation for all pregnant and breastfeeding women to prevent iodine deficiency. Active promotion of the recommendation by healthcare providers is believed to facilitate supplement intake by women.

**What is already known**

Little is known of healthcare providers' awareness and implementation of the NHMRC's recommendation.

**What this paper adds**

More than half of healthcare providers, including midwives, nation-wide were unaware of the recommended dose or duration of iodine supplements. It highlights a need to improve HCPs' knowledge of and adherence to the recommendation for iodine supplementation.

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## 1. Introduction

Iodine is essential for the production of thyroid hormones, triiodothyronine (T3) and thyroxine (T4), which are essential for normal growth and development.<sup>1</sup> Inadequate intake can lead to iodine deficiency while excessive intake can lead to toxicity, and both can adversely affect growth and development particularly during pregnancy and early childhood.<sup>1–3</sup> Australia has seen a re-emergence of mild iodine deficiency as indicated by the National Iodine Nutrition Survey conducted in 2003–04.<sup>4</sup> As a result, mandatory iodine fortification of bread was introduced in 2009 to address this issue.<sup>5</sup> In addition, the National Health and Medical Research Council (NHMRC) has also recommended that ‘all women who are pregnant, breastfeeding or considering pregnancy, take an iodine supplement of 150 µg each day’ to prevent iodine deficiency.<sup>6</sup> This is due to concerns that mandatory iodine fortification may not be sufficient to prevent iodine deficiency in pregnant women and breastfeeding mothers, and mild deficiency during pregnancy and lactation may impair cognitive function of children.<sup>6–8</sup>

Since the 2010 NHMRC recommendation, there has been only one small study that investigated knowledge of healthcare providers (HCPs) involved in the care of pregnant women regarding the NHMRC’s iodine recommendation, which reported poor knowledge among a small group of general practitioners ( $n = 50$ ) and nurses ( $n = 11$ ) in the Illawarra region of NSW.<sup>9</sup> No national studies have investigated whether HCPs who consult pregnant women and breastfeeding mothers, namely midwives and obstetricians, are aware of and following the NHMRC recommendation. HCPs have been shown to play an important role in influencing dietary behaviour, including supplement use during pregnancy.<sup>10</sup> Research shows that not receiving information regarding the benefits of and need for supplementation from HCPs is believed to be a barrier to supplement use, while active promotion of peri-conceptual folic acid supplements by general practitioners (GP) is believed to facilitate use.<sup>11</sup> The aim of the present study was to assess the knowledge and practices of relevant HCPs regarding iodine nutrition and iodine supplementation during pre-conception, pregnancy and lactation.

## 2. Methods

A national online survey of HCPs involved in the care of pregnant women and breastfeeding mothers was conducted between May and September, 2013. The survey was hosted online using *Survey Monkey* ([www.surveymonkey.com](http://www.surveymonkey.com)).

### 2.1. Participants and recruitment

Obstetricians, gynaecologists, GPs, midwives, dietitians and lactation consultants nation-wide were invited to participate in the survey through their relevant professional organisations, The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), The Royal Australian College of General Practitioners (RACGP), The Rural Doctors Association of Australia (RDAA), The Australian College of Midwives (ACM), The Dietitians Association of Australia (DAA) and The Lactation Consultants of Australia and New Zealand (LCANZ), respectively. Information about the survey was included in the newsletters that the HCPs receive regularly from their professional body listed above. HCPs were informed that ‘By completing this survey you are consenting to being part of this study’ and were then asked that ‘If you would like to take part in the survey, please complete the questionnaire via the link provided’. A web link for the survey was included in the newsletters. Ethics approval was obtained from the University of Adelaide Human Research Ethics Committee (Approval Number: Ref H-2013-

040). Approval to distribute the survey was also obtained from all relevant professional organisations.

### 2.2. Development of survey questionnaire

The survey questionnaire was developed based on a review of the literature<sup>12–14</sup> and current NHMRC guidelines.<sup>6</sup> The survey collected information on knowledge and current practice regarding iodine nutrition in preconception, pregnancy and breastfeeding. Knowledge-based questions included awareness of the NHMRC recommendation for iodine supplementation (Yes/No), the dose (five categories: Unsure, 100 µg/day, 150 µg/day, 250 µg/day, Other – specify) and duration (three categories: planning pregnancy, during pregnancy, during breastfeeding, multiple choices allowed) of iodine supplementation recommended by the NHMRC, and dietary sources of iodine (11 categories of food items and core food groups). Questions regarding practice included whether HCPs were: recommending iodine supplements to women planning pregnancy, during pregnancy and breastfeeding; discussing dietary sources of iodine; and screening women for iodine deficiency in their practice. Data on what types of iodine related information are considered useful in their practice were also collected from all HCPs except obstetricians and gynaecologists (the RANZCOG requested that the relevant survey question be removed from the survey of their members). Demographic information included age, gender, length of practice, region of practice as well as the number and duration of consultations with pregnant women and breastfeeding mothers. Both multiple choice and open-ended questions were used. The survey questions were piloted among research students, nurses and midwives of the research organisation that conducted the survey. The final questionnaire took approximately 10 minutes to complete.

### 2.3. Statistical analysis

Statistical analysis was conducted using SPSS 20.0 software (SPSS Inc. Chicago, IL, USA). Data was exported from *Survey Monkey* at the end of the data collection period. Free-text responses were recoded into categories. Means and standard deviations were calculated for normally distributed continuous variables and number and percentage were calculated for categorical variables. Chi-squared tests were conducted to determine whether there were differences in practices according to demographic characteristics. Statistical significance was set at  $p \leq 0.05$ .

## 3. Results

### 3.1. Participant characteristics

Three hundred and ninety-six HCPs nation-wide completed the survey. Only five lactation consultants took part in the survey and due to this limited response rate, their data were excluded from analysis. The demographic characteristics of the HCPs are presented in [Table 1](#). The majority were female (73%), over 30 years of age and had been practising for over three years in metropolitan areas. Overall, HCPs had more consultations with pregnant women than breastfeeding mothers: the percentage of HCPs seeing > 15 women per week was 37% in pregnancy compared with 6% in lactation. Over half (55%) of obstetricians and gynaecologists reported seeing > 15 pregnant women per week.

### 3.2. Knowledge and practice in relation to the NHMRC recommendation for iodine supplementation

HCPs’ knowledge of the NHMRC recommendation regarding iodine supplementation is presented in [Table 2](#). While most HCPs were aware of the recommendation (272/381, 71%), fewer were

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