

## CORRESPONDENCE

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# Lessons drawn from research utilization in the maternal iodine supplementation policy development in Thailand

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In this paper, the authors share their experience on evidence utilization in the development of Thailand's maternal iodine supplementation policy in 2009–2010. Observations and reflections on their experience of engaging with research for policymaking are illustrated. The case study indicates that rapid approaches in conducting research, namely a targeted literature review and cross-sectional survey of professionals' opinions and current practices were efficient in achieving the timeliness of evidence provision. In addition pro-activity, trust and interaction between researchers and policymakers enhanced the research–policy integration. The Thai experience may be useful for other developing countries which pursue evidence-informed policymaking, despite differences in the health system context.

**Keywords:** Iodine deficiency disorders, Dietary supplementation, Pregnancy, Policy development, Health policy, Research utilization, Case study, Rapid review, Thailand

**Background****Research utilization in policymaking**

Recently, there has been a greater attention to evidence-informed policymaking and the transparency, accountability and inclusiveness of its processes [1]. Although prioritization of research topics and systematic reviews/randomized control trials are considered the best approaches to select and generate evidence, sometimes more rapid approaches to gather information are needed due to cost considerations, limited human resources, and urgent demands [2].

Systematic reviews and primary studies of health research utilization have revealed that there are a number of factors influencing research utilization. These include: (a) interaction and trust between decision-makers and researchers; (b) the quality, timeliness and relevance of the evidence produced; (c) the political environment; (d) the attitude and proficiency of decision-makers; (e) established policy networks; (f) the concurrence of

research findings with existing policies, and (g) the social and economic environment [3–6].

**Iodine deficiency disorders in Thailand**

Iodine deficiency disorders (IDD) remain an important health problem in Thailand, even though several initiatives have been carried out by the Ministry of Public Health (MoPH) in collaboration with international and domestic organizations for decades. Since the establishment of the National IDD Control Board in 1994, three major measures—Universal Salt Iodization (USI), iodized oil capsules and water iodization—have been introduced. Despite these initiatives, mild to moderate IDD and its consequences still exist [7]. An external review conducted by the International Council for Control of Iodine Deficiency Disorders (ICCIDD) in 2009 indicated the ineffectiveness of the USI and suboptimal iodine nutrition in 60–70% of pregnant Thai women [8]. The dissemination of the review results, in particular the information on the declining intellectual quotient in Thai children, drew the attention of concerned parties including the MoPH, not only to the problem of children's intelligence but also to its attributable factors and potential solutions. Providing iodine supplements to

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childbearing and lactating women was identified as a key measure towards reversing this trend.

### **Objectives**

This paper aims to explore the development of maternal iodine supplementation policy in Thailand between November 2009 and October 2010. It sheds light on the role of scientific evidence and the factors encouraging the utilization of such evidence in the policy decisions. The Thai lessons may be helpful for other developing countries pursuing research-policy nexus in their own health system context.

### **Researchers' role in policy process and evidence generation**

1. To understand the policy process and identify the factors influencing evidence uptake, observation of stakeholder consultations and a review of government documents, internal circulars, and e-mail communication were employed.
2. To address particular policy questions, the authors conducted a rapid review on the evidence on appropriate dosage and forms of iodine, and a rapid survey of obstetricians' current practices, perceptions and preferred formulation of micronutrient supplements.

### **Observations and reflections on the experience of research utilization**

#### **Timeline of key events**

The development of the maternal iodine supplementation policy occurred within one year after the findings of the ICCIDD's review were publicised, as depicted in Figure 1. Key actors are presented in ovals, important events in boxes, and evidence provided in rounded rectangles.

The attention of the Thai government was seriously stimulated in November 2009 when this problematic issue was raised on the meeting agenda of the National Committee on Early Childhood Development (NCECD) [9]. The Committee requested that the MoPH introduce an iodine supplementation program for pregnant women. While this policy was generally agreed upon in principle by most stakeholders, there were questions over the appropriate dosage and formulation of the iodine supplements. In this respect, the Department of Health (DoH) and the Royal Thai College of Obstetricians and Gynecologists (RTCOCG) suggested the provision of a multinutrient preparation.

It was not until March 2010 that the MoPH officially announced that it would offer iodine, iron and folic acid tablets to pregnant women, as well as iodine and iron supplements for neonates and children under 5 years

old [10]. This initiative received support from the World Health Organization (WHO) and the United Nations Children's Fund's (UNICEF) officers in Thailand as the iodine supplement would ensure adequate iodine intake by pregnant and lactating women. Local representatives of the WHO and UNICEF also strongly recommended that the MoPH strengthen the USI program [11, 12].

### **Devising a policy instrument**

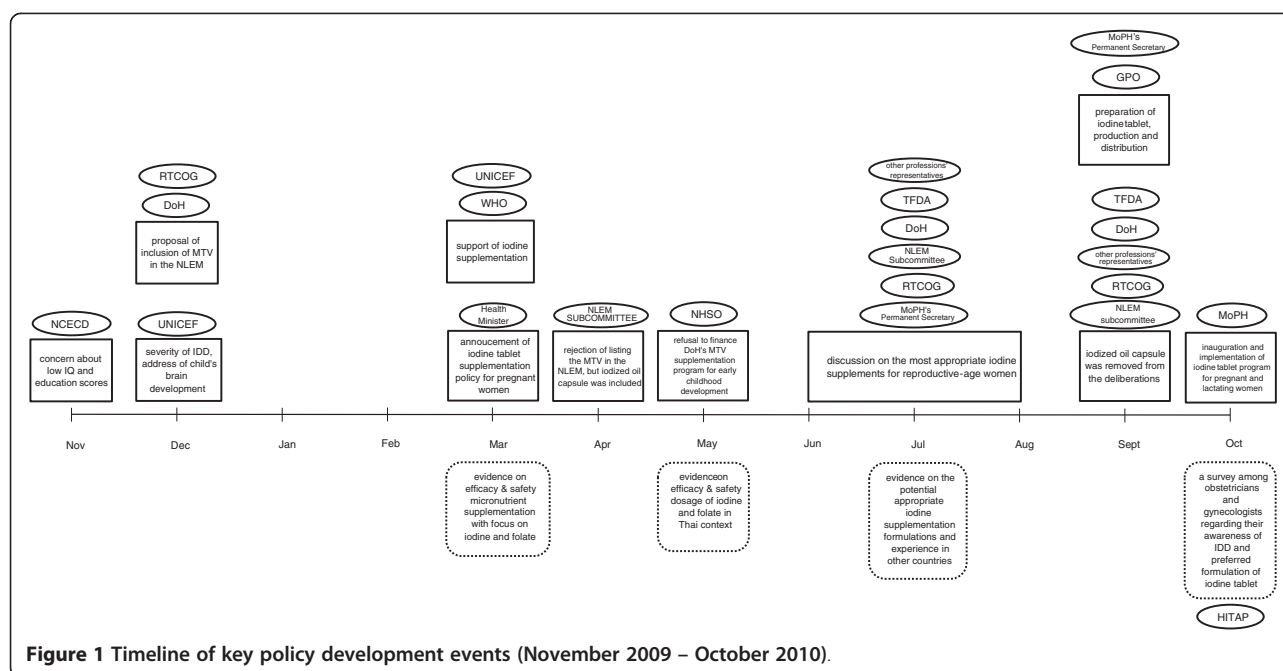
However, the new initiative could not get started. Since iodine supplements were not included in the country's pharmaceutical benefit package, the National List of Essential Medicines (NLEM) [13], the products could not be subsidised in public health schemes. In response to the obstacle, in April 2010 the NLEM Development Committee decided to list iodized oil capsules for maternal use, rather than the multinutrient preparations proposed by the DoH. The three underlying reasons for the decision were: i) a concern for excessive intake of vitamin A during pregnancy (WHO safety limits 10,000 IU), ii) the possibility of overconsumption of unnecessary micronutrients, and iii) the fact that iodized oil capsules were listed in the WHO's Model List of Essential Medicines. Whereas the DoH and RTCOCG argued that a multinutrient preparation would satisfy the nutritional requirements in pregnancy and treatment adherence, both the NLEM and the Universal Coverage Committees rejected this proposal due to the inconclusive evidence.

The debate continued in three consultations chaired by the MoPH's Permanent Secretary between June and August 2010. The discussions focused on the most appropriate iodine preparations to be offered to pregnant and lactating women. Throughout the consultation processes, several types of evidence were provided by respective organizations. The DoH prepared a list of multinutrient products available in the country, along with a concept note highlighting the crucial roles of folic acid, iodine and iron in child development, as well as the prevalence of iron deficiency anemia and thalassaemic pregnancy cases (thalassemia remains an important health problem [14]).

With regards to iodized oil, this formulation was removed from the NLEM in September 2010 because of health professionals' concerns about potential hyperthyroidism as the preparation was going to be prescribed in a mild-to-moderate iodine deficient setting like Thailand [8].

### **The quest for an appropriate preparation**

Shortly after, it was concluded that the maternal supplement would only contain folic acid, iodine and iron. The discussion was then geared towards the question of which formulations and dosages should be offered. The options ranged from a combination of the three



micronutrients to single tablets of each. At this point, researchers from the Health Intervention and Technology Assessment Program (HITAP), a semi-autonomous research agency under the aegis of the MoPH [15], actively provided evidence synthesized from systematic reviews, clinical trials, guidelines and documents about dosage and formulations for maternal iodine supplementation. Reference lists were scanned, authors of ongoing clinical trials were contacted, and relevant experts were consulted (see Additional file 1).

HITAP had been requested to verify the appropriateness of iodine supplementation, even though this topic was not selected through the conventional prioritization channels. This is because of the trust and interactive relationship built with key policymakers since the agency's inception [15, 16]. Owing to this relationship, HITAP researchers were able to actively share evidence to address questions arising during the deliberations. Also, HITAP proposed to conduct a rapid preference survey among the 2,228 RCOGT members in September 2010 [17] (see Additional file 2).

Drawn from the abovementioned evidence, HITAP recommended a fixed-dose combination of the three nutrients for the target population, and potassium iodide in a single tablet for thalassemic pregnant women. Suggested doses were based on the daily requirements recommended by the WHO and UNICEF - 400 µg of folic acid, 250 µg of iodine, and 60 µg of iron [18]. Given the current movement to strengthen the USI program, however, some experts suggested that 150 µg was safer than 250 µg of iodine. The Government Pharmaceutical

Organization (GPO), a state enterprise under the MoPH [19], was assigned to produce and distribute both preparations. On 1 October 2010, the maternal iodine supplementation program was inaugurated nationwide.

### Discussion and lessons drawn

As suggested in this case study, the decision on the provision of the iodine supplement was made from inception, while evidence from a rapid review and survey played a crucial role in addressing the need for timely evidence on the most suitable iodine-containing preparation.

Rapid reviews and syntheses of selected pieces of information are commonly conducted in response to pressure from decision-makers who frequently need to make decisions in short time periods [2]. Although questions have arisen regarding the appropriateness and transparency of these methodologies in comparison to full reviews, it has been argued that they can still play an important role in evidence-informed decision-making, and emphasis should be placed on their appropriate use [20]. Evidence has shown that the results of rapid and full reviews are not much different, although the scope of the former is narrower [21]. Since the evidential needs of the iodine case deliberations were specifically related to appropriate formulation and dosage, a rapid review appears to be a suitable approach to support policy-making in this instance.

Given the short time available for conducting the survey, the exclusion of non-RTCOG practitioners such as nurses, midwives, and family physicians, all of whom

have also provided antenatal care, may imply that maternal iodine supplement prescribers are not perfectly represented. However, specialist physicians have a high influence on other health professionals and patients in Thailand [22, 23]; therefore, the survey targeted this group in order to engage them in the future policy implementation.

In addition, the right timing and timeliness of providing research results is critical to foster research utilization as argued in Lavis et al. [4]. In the same vein, this case study suggests that HITAP researchers were able to provide relevant evidence to policymakers and key stakeholders in a timely fashion. This paper also reveals that the proactive identification of evidence requirements during ongoing policy processes might be a key factor facilitating evidence uptake and strengthening trust and interactive relationships between policymakers and researchers.

## Additional file

**Additional file 1.** Summary of the rapid review results

**Additional file 2.** Summary of the rapid survey results

## Abbreviations

DoH: Department of Health; GPO: Government Pharmaceutical Organization; HITAP: Health Intervention and Technology Assessment Program; ICCIDD: International Council for Control of Iodine Deficiency Disorders; IDD: Iodine deficiency disorders; MoPH: Ministry of Public Health; NCECD: National Committee on Early Childhood Development; NLEM: National List of Essential Medicines; RTCOG: Royal Thai College of Obstetricians and Gynecologists; TFDA: Thai Food and Drug Administration; UNICEF: United Nations Children's Fund; USI: Universal Salt Iodization; WHO: World Health Organization.

## Competing interests

The authors declare no conflict of interest.

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## Authors' contributions

All authors contributed equally to the production of this paper.

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## References

1. Neumann PJ: Lessons for health technology assessment: it is not only about the evidence. *Value Health* 2009, **12**(Suppl 2):S45–S48.

2. Ganann R, Ciliska D, Thomas H: Expediting systematic reviews: methods and implications of rapid reviews. *Implement Sci* 2010, **5**:56.
3. Innvaer S, Vist G, Trommald M, Oxman A: Health policy-makers' perceptions of their use of evidence: a systematic review. *J Health Serv Res Policy* 2002, **7**(4):239–244.
4. Lavis J, Davies H, Oxman A, Denis JL, Golden-Biddle K, Ferlie E: Towards systematic reviews that inform health care management and policy-making. *J Health Serv Res Policy* 2005, **10**(Suppl 1):35–48.
5. Teerawattananon Y, Russell S: A difficult balancing act: policy actors' perspectives on using economic evaluation to inform health-care coverage decisions under the Universal Health Insurance Coverage scheme in Thailand. *Value Health* 2008, **11**(Suppl 1):S52–S60.
6. Daniels K, Lewin S: Translating research into maternal health care policy: a qualitative case study of the use of evidence in policies for the treatment of eclampsia and pre-eclampsia in South Africa. *Health Res Policy Syst* 2008, **6**:12.
7. Sinawat S, Damapongs N: Iodine deficiency disorders in Thailand: future prospects. In *Fact sheet—Nutrition*, Volume 1. Bangkok: Department of Health; 1998.
8. International Council for the Control of Iodine Deficiency Disorders: *Tracking progress towards sustainable elimination of iodine deficiency disorders in Thailand*. Ottawa: International Council for the Control of Iodine Deficiency Disorders; 2009.
9. National Committee on Early Childhood Development Meeting of the National Committee on Early Childhood Development; 2012 [http://spm.thaigov.go.th/mobile/submore.asp?pageid=456&directory=2507&contents=7083&pageno=15&no=86].
10. Thairath: Nutrition supplements offered to prevent low IQ, NESDB Office. In *Thairath*. Bangkok: Thairath; 2010.
11. Plianbangchang S: Unfinished agenda: eliminating iodine deficiency. In *Bangkok Post*. Bangkok: Bangkok Post; 2010.
12. Ekachai S: Entire nation is red, for lack of iodine. In *Bangkok Post*. Bangkok: Bangkok Post; 2010.
13. National Drug Committee: *National List of Essential Medicines 2008*. Bangkok: National Drug Committee; 2008.
14. Panich V, Pornpatkul M, Sriroongrueng W: The problem of thalassemia in Thailand. *Southeast Asian J Trop Med Public Health* 1992, **23**(Suppl 2):1–6.
15. Tantivess S, Teerawattananon Y, Mills A: Strengthening cost-effectiveness analysis in Thailand through the establishment of the health intervention and technology assessment program. *PharmacoEconomics* 2009, **27**(11):931–945.
16. Chalkidou K, Levine R, Dillon A: Helping poorer countries make locally informed health decisions. *BMJ* 2010, **341**:c3651.
17. Tonmukayakul U, Vivekmetakorn S, Teerawattananon Y: A survey of maternal vitamin and mineral supplements prescribed by Thai obstetricians. *J Health Syst Res* 2011, **5**(1):40–46.
18. World Health Organization, United Nations Children's Fund: *Reaching optimal iodine nutrition in pregnant and lactating women and young children. Joint Statement of the World Health Organization and the United Nations Children's Fund*. Geneva: World Health Organization; 2007.
19. Government Pharmaceutical Organization (GPO). 2012 [http://www.intergpomed.com/Default.aspx?tabid=167].
20. Watt A, Cameron A, Sturm L, Lathlean T, Babidge W, Blamey S, Facey K, Hailey D, Norderhaug I, Maddern G: Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. *Int J Technol Assess Health Care* 2008, **24**(2):133–139.
21. Watt A, Cameron A, Sturm L, Lathlean T, Babidge W, Blamey S, Facey K, Hailey D, Norderhaug I, Maddern G: Rapid versus full systematic reviews: validity in clinical practice? *ANZ J Surg* 2008, **78**(11):1037–1040.
22. Williams RL, Henley E, Prueksaritanond S, Aramrattana A: Family practice in Thailand: will it work? *J Am Board Fam Pract* 2002, **15**(1):73–76.
23. Ugalde A: Physicians' control of the health sector: professional values and findings from the Honduran health system. *Soc Sci Med Part A Med Psychol Med Soc* 1980, **14**(5):435–444.

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