



**TITLE: Routine Prenatal Thyroid-Stimulating Hormone Testing: Evidence-Based Guidelines**

**DATE:** 14 November 2016

**RESEARCH QUESTION**

What are the evidence-based guidelines for routine screening of thyroid-stimulating hormone in prenatal women?

**KEY FINDINGS**

Four evidence-based guidelines were identified regarding routine screening of thyroid-stimulating hormone in prenatal women.

**METHODS**

This report makes use of a literature search developed for a previous CADTH report. The original literature search was conducted in May 2010 on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, and guidelines. Where possible, retrieval was limited to the human population. The initial search was also limited to English-language documents published between January 1, 2005 and May 3, 2010. For the current report, database searches were rerun on November 7, 2016 to capture any articles published since the initial search date. The search of major health technology agencies was also updated to include documents published since May 2010.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

**Disclaimer:** The Rapid Response Service is an information service for those involved in planning and providing health care in Canada. Rapid responses are based on a limited literature search and are not comprehensive, systematic reviews. The intent is to provide a list of sources of the best evidence on the topic that the Canadian Agency for Drugs and Technologies in Health (CADTH) could identify using all reasonable efforts within the time allowed. Rapid responses should be considered along with other types of information and health care considerations. The information included in this response is not intended to replace professional medical advice, nor should it be construed as a recommendation for or against the use of a particular health technology. Readers are also cautioned that a lack of good quality evidence does not necessarily mean a lack of effectiveness particularly in the case of new and emerging health technologies, for which little information can be found, but which may in future prove to be effective. While CADTH has taken care in the preparation of the report to ensure that its contents are accurate, complete and up to date, CADTH does not make any guarantee to that effect. CADTH is not liable for any loss or damages resulting from use of the information in the report.

**Copyright:** This report contains CADTH copyright material and may contain material in which a third party owns copyright. **This report may be used for the purposes of research or private study only.** It may not be copied, posted on a web site, redistributed by email or stored on an electronic system without the prior written permission of CADTH or applicable copyright owner.

**Links:** This report may contain links to other information available on the websites of third parties on the Internet. CADTH does not have control over the content of such sites. Use of third party sites is governed by the owners' own terms and conditions.

## SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<b>Population</b>	Pregnant women (subpopulations of interest: Indigenous women, women in remote, rural, or resource limited settings)
<b>Intervention</b>	Universal or target prenatal screening for thyroid stimulating hormone
<b>Comparator</b>	No comparator; screening versus other types of screening methods; no screening
<b>Outcomes</b>	Guidelines and recommendations regarding appropriate screening for TSH, guidelines and recommendations regarding screening Indigenous women, guidelines and recommendations regarding screening in rural or remote settings, guidelines and recommendations regarding the clinical competencies of those performing screening
<b>Study Designs</b>	Evidence-based guidelines

TSH = thyroid-stimulating hormone

## RESULTS

Four evidence-based guidelines were identified regarding routine screening of thyroid-stimulating hormone in prenatal women.

Additional references of potential interest are provided in the appendix.

## OVERALL SUMMARY OF FINDINGS

Four evidence-based guidelines were identified.<sup>1-4</sup> Three guidelines do not recommend universal screening of pregnant women for thyroid dysfunction due to insufficient evidence to support its routine use.<sup>1,3,4</sup> The members of the Endocrine Society guideline group<sup>4</sup> were not able to come to consensus regarding screening and presented two options. Some members recommended universal thyroid screening for all pregnant women by the ninth week of pregnancy and some members did not recommend for or against universal screening but did indicate that high risk women should be identified and screened.<sup>4</sup> The European Thyroid Association indicates that targeted screening may miss a large number of women with thyroid dysfunction but they did not provide a recommendation specific to universal screening.<sup>2</sup>

Due to the lack of evidence for or against routine thyroid screening, screening efforts should be focused on those pregnant women who are determined to be at high risk of thyroid dysfunction.<sup>1,3,4</sup> Risk factors for hypothyroidism in this population include:<sup>3</sup>

- History of thyroid dysfunction or prior thyroid surgery
- Age greater than 30 years
- Symptoms of thyroid dysfunction or the presence of goiter
- Residing in an area of known moderate to severe iodine sufficiency
- Thyroperoxidase antibody positivity
- Type 1 diabetes or other autoimmune disorders
- History of miscarriage or preterm delivery
- History of head or neck radiation

- Family history of thyroid dysfunction
- Morbid obesity (body mass index greater than 40 kg/m<sup>2</sup>)
- Use of amiodarone or lithium, or recent administration of iodinated radiologic contrast
- Infertility

## REFERENCES SUMMARIZED

### Guidelines and Recommendations

1. Australian Health Ministers' Advisory Council. Clinical practice guidelines: antenatal care - module II [Internet]. Canberra (ACT): Australian Government Department of Health; 2014 [cited 2016 Nov 14]. Available from: [http://www.health.gov.au/internet/main/publishing.nsf/Content/phd-antenatal-care-index/\\$File/Module%20%20Guidelines%20-%20FINAL%20COPY%20\(D15-1363763\).PDF](http://www.health.gov.au/internet/main/publishing.nsf/Content/phd-antenatal-care-index/$File/Module%20%20Guidelines%20-%20FINAL%20COPY%20(D15-1363763).PDF)  
*See: Thyroid Dysfunction, page xv and section 8.10: Thyroid dysfunction, page 195*
2. Lazarus J, Brown RS, Daumerie C, Hubalewska-Dydejczyk A, Negro R, Vaidya B. 2014 European thyroid association guidelines for the management of subclinical hypothyroidism in pregnancy and in children. *Eur Thyroid J.* 2014 Jun;3(2):76-94. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4109520>  
[PubMed: PM25114871](#)
3. National Guideline Clearinghouse. American Thyroid Association. Guidelines of the American Thyroid Association for the diagnosis and management of thyroid disease during pregnancy and postpartum [summary]. In: National Guideline Clearinghouse [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2012 [cited 2016 Nov 14]. Guideline summary available: <https://www.guideline.gov/summaries/summary/36633/guidelines-of-the-american-thyroid-association-for-the-diagnosis-and-management-of-thyroid-disease-during-pregnancy-and-postpartum?q=thyroid+and+pregnancy>  
*See: Thyroid Function Screening in Pregnancy*
4. National Guideline Clearinghouse. The Endocrine Society. Management of thyroid dysfunction during pregnancy and postpartum: an Endocrine Society clinical practice guideline. In: National Guideline Clearinghouse [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 (rev 2012) [cited 2016 Nov 14]. Guideline summary available: <https://www.guideline.gov/summaries/summary/39246/management-of-thyroid-dysfunction-during-pregnancy-and-postpartum-an-endocrine-society-clinical-practice-guideline?q=thyroid+and+pregnancy>  
*See: Screening for Thyroid Dysfunction during Pregnancy*

### PREPARED BY:

Canadian Agency for Drugs and Technologies in Health  
Tel: 1-866-898-8439  
[www.cadth.ca](http://www.cadth.ca)

**APPENDIX – FURTHER INFORMATION:**

**Systematic Reviews and Meta-Analyses**

5. Jouyandeh Z, Hasani-Ranjbar S, Qorbani M, Larijani B. Universal screening versus selective case-based screening for thyroid disorders in pregnancy. *Endocrine*. 2015 Feb;48(1):116-23.  
[PubMed: PM25173191](#)
6. Spencer L, Bubner T, Bain E, Middleton P. Screening and subsequent management for thyroid dysfunction pre-pregnancy and during pregnancy for improving maternal and infant health. *Cochrane Database Syst Rev*. 2015 Sep 21;(9):CD011263.  
[PubMed: PM26387772](#)

**Non-Randomized Studies**

7. Ohashi M, Furukawa S, Michikata K, Kai K, Sameshima H, Ikenoue T. Risk-based screening for thyroid dysfunction in pregnancy [Internet]. *J Pregnancy*. 2013 Mar [cited 2016 Nov 14]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3625569/>
8. Matuszek B, Zakoscielna K, Baszak-Radomska E, Pyzik A, Nowakowski A. Universal screening as a recommendation for thyroid tests in pregnant women. *Ann Agric Environ Med*. 2011;18(2):375-9.  
[PubMed: PM22216815](#)

**Clinical Practice Guidelines – Methodology Not Specified**

9. BC Health, Guidelines & Protocols Advisory Committee. British Columbia guidelines: Special endocrine testing [Internet]. Vancouver (BC): British Columbia, Ministry of Health; 2016 [cited 2016 Nov 14]. Available from:  
[http://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/endo\\_full\\_guideline.pdf](http://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/endo_full_guideline.pdf)  
*See: 4: Thyroid, page 6*
10. Toward Optimized Practice (TOP) Endocrine Working Group. Investigation and management of primary thyroid dysfunction: clinical practice guideline [Internet]. Edmonton (AB): Toward Optimized Practice; 2014 [cited 2016 Nov 14]. Available from:  
[http://www.topalbertadoctors.org/download/350/thyroid\\_guideline.pdf?\\_20161107131318](http://www.topalbertadoctors.org/download/350/thyroid_guideline.pdf?_20161107131318)  
*See: Category 4: Pregnancy, page 3*
11. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists [Internet]. Testing for hypothyroidism during pregnancy with serum TSH. East Melbourne, Victoria, Australia: The Royal Australian and New Zealand College of Obstetricians and Gynaecologists; 2012 [cited 2016 Nov 14]. Available from:  
[https://www.ranzcog.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Testing-for-hypothyroidism-during-pregnancy-with-serum-TSH-\(C-Obs-46\)-Review-July-2015.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Testing-for-hypothyroidism-during-pregnancy-with-serum-TSH-(C-Obs-46)-Review-July-2015.pdf?ext=.pdf)

12. BPAC, New Zealand. Management of thyroid dysfunction in adults [Internet]. BPJ. 2010 Dec [cited 2016 Nov 14] 33:22-32. Available from: [http://www.bpac.org.nz/BPJ/2010/December/docs/bpj\\_33\\_thyroid\\_pages\\_22-32.pdf](http://www.bpac.org.nz/BPJ/2010/December/docs/bpj_33_thyroid_pages_22-32.pdf)  
*'Pregnant' mentioned throughout*

### Review Articles

13. Giacobbe AM, Grasso R, Triolo O, Tonni G, Granese R. Thyroid diseases in pregnancy: a current and controversial topic on diagnosis and treatment over the past 20 years. Arch Gynecol Obstet. 2015 Nov;292(5):995-1002.  
[PubMed: PM25953695](#)
14. Amouzegar A, Mehran L, Sarvghadi F, Delshad H, Azizi F, Lazarus JH. Comparison of the American Thyroid Association with the Endocrine Society practice guidelines for the screening and treatment of hypothyroidism during pregnancy. Hormones (Athens). 2014 Jul;13(3):307-13.  
[PubMed: PM25079454](#)
15. Vila L, Velasco I, Gonzalez S, Morales F, Sanchez E, Torrejon S, et al. Controversies in endocrinology: on the need for universal thyroid screening in pregnant women. Eur J Endocrinol. 2014 Jan;170(1):R17-R30.  
[PubMed: PM24128429](#)
16. Chang DLF, Pearce EN. Screening for maternal thyroid dysfunction in pregnancy: a review of the clinical evidence and current guidelines [Internet]. J Thyroid Res. 2013 [cited 2016 Nov 14]. Available from: <https://www.hindawi.com/journals/jtr/2013/851326/>
17. Laurberg P, Andersen SL, Pedersen IB, Andersen S, Carle A. Screening for overt thyroid disease in early pregnancy may be preferable to searching for small aberrations in thyroid function tests. Clin Endocrinol (Oxf). 2013 Sep;79(3):297-304.  
[PubMed: PM23627986](#)
18. Springer D, Potlukova E, Limanova Z, Zima T. Recommendations on prenatal screening and the connections to other diseases such as thyroid dysfunction. Clin Chem Lab Med. 2012 Mar 22;50(7):1211-20.  
[PubMed: PM22850054](#)
19. Vila L, Velasco I, Gonzalez S, Morales F, Sanchez E, Laila JM, et al. Detection of thyroid dysfunction in pregnant women: universal screening is justified. Endocrinol Nutr. 2012 Nov;59(9):547-60.  
[PubMed: PM23099114](#)
20. Lazarus JH. Thyroid function in pregnancy. Br Med Bull. 2011;97:137-48.  
[PubMed: PM21186204](#)