Script for “Recommendation on screening adults for asymptomatic thyroid dysfunction in primary care”

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The Canadian Task Force on Preventive Health Care’s “Recommendation on screening adults for asymptomatic thyroid dysfunction in primary care”

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These slides are made available publicly following the guideline’s release as an educational support to assist with the dissemination, uptake and implementation of the guidelines into primary care practice. Some or all of the slides in this slide deck may be used in educational contexts.

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Overview of the Webinar
- Presentation

* Background on screening adults for asymptomatic thyroid dysfunction in primary care
* Methods of the Task Force
* Key Findings
* Recommendations
* Implementation Considerations
* Conclusions
* Questions and Answers

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The Screening for Thyroid Dysfunction Working Group consisted of: Task Force members (Richard Birtwhistle (Chair), James A Dickinson, Donna L. Reynolds, Brett D. Thombs), non-voting members from the Public Health Agency of Canada (Kate Morissette, Francesca Reyes Domingo, Marc T. Avey, Rachel Rodin). KT support from the Knowledge Translation Program, Li Ka Shing Knowledge Institute, St. Michael’s Hospital.

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- Background

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Thyroid dysfunction (i.e., hyperthyroidism or hypothyroidism) is a disorder affecting the thyroid gland

* Hyperthyroidism: when the thyroid gland produces too much thyroid hormone
* Hypothyroidism: when the thyroid gland produces insufficient thyroid hormone

About 10% of Canadians aged 45 years and older have thyroid dysfunction

* Higher prevalence in women (16%) than men (4%)

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Signs and symptoms are often non-specific, and some people are asymptomatic

* Hypothyroidism: tiredness, sensitivity to cold, dry skin, hair loss, weight gain and slowed movements and thoughts
* Hyperthyroidism: increased heart rate, atrial fibrillation, hyperactivity or irritability, intolerance to heat, tremor and weight loss

Screening for thyroid dysfunction involves a blood test to measure serum thyroid-stimulating hormone (TSH).

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Guideline Scope
This guideline presents an evidence-based recommendation on screening asymptomatic nonpregnant adults aged 18 years and older for thyroid dysfunction.

The recommendation does not apply to patients with previously diagnosed thyroid disease or thyroid surgery, exposure to medications known to affect thyroid function (e.g., lithium, amiodarone), exposure to thyroid radioiodine therapy, or radiotherapy to the head or neck, or pituitary or hypothalamic diseases.

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Methods

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Task Force is an independent panel of:

* Clinicians and methodologists
* Expertise in prevention, primary care, literature synthesis, and critical appraisal
* Application of evidence to practice and policy

The Working Group included 4 Task Force members who established the research questions and analytical framework.

Staff from the Public Health Agency of Canada conducted systematic reviews of the literature based on the analytical framework and GRADE methodology. The systematic reviews addressed: benefits and harms of screening; benefits and harms of treating screen-detected thyroid dysfunction; and patient values and preferences.

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The key questions for the systematic reviews were:

* KQ1: Does screening asymptomatic, nonpregnant adults for Thyroid Dysfunction (TD) reduce morbidity and mortality?
* KQ2: What are the harms of screening asymptomatic, nonpregnant adults for TD?
* KQ3: Does treatment of screen-detected overt or subclinical TD improve (a) morbidity or mortality or (b) intermediate outcomes?
* KQ4: What are the harms of treating screen-detected TD in asymptomatic, nonpregnant adults?
* KQ5: What are asymptomatic, nonpregnant adults’ preferences and values concerning screening for TD?
* KQ6: If screening asymptomatic, nonpregnant adults for TD is clinically effective, then what is the cost effectiveness and associated resource use? (this was not completed as there was no evidence of benefits).

For more detailed information, please access the systematic review www.canadiantaskforce.ca

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Study Eligibility Criteria for KQ1-4
Population: nonpregnant adults 18 years and older with no clear symptoms of thyroid dysfunction
Study type: Randomized controlled trials, or controlled observational studies
Intervention: KQ1-2: Screening. KQ3-4: Treatment including thyroid hormone replacement therapy, antithyroid medications, surgery, and ablation therapy.
Outcomes: KQ1: clinical outcomes (mortality (all-cause and cardiovascular), fatal and non-fatal cardiovascular events, atrial fibrillation, fractures, quality of life, and cognitive function). KQ2: psychological effects, harms of workup, overdiagnosis, overtreatment. KQ3: clinical outcomes in KQ1 + intermediate outcomes (cholesterol, blood pressure, weight change, bone density). KQ4: harms of treatment.

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The CTFPHC utilizes the GRADE system for providing clinical practice guideline recommendations based on a systematic review of the available evidence. The GRADE acronym stands for: Grading of Recommendations, Assessment, Development and Evaluation.

The GRADE system is composed of two main components:

1. The certainty of the evidence: The certainty of the evidence measures the degree of confidence that the available evidence correctly reflects the theoretical true effect of the intervention or service. It is graded as high, moderate, low or very low based on how likely further research is to change our confidence in the estimate of effect.

2. The strength of recommendation: The strength of the recommendation (strong/conditional) is based on the quality of supporting evidence, the degree of uncertainty about the balance between desirable and undesirable effects, the degree of uncertainty or variability in values and preferences, and the degree of uncertainty about whether an intervention represents a wise use of resources.

How is the Strength of Recommendations Determined?

The strength of the recommendations (strong or weak) is based on four factors:

1. The certainty of the supporting evidence

2. The certainty about the balance between desirable and undesirable effects

3. The certainty or variability in the values and preferences of individuals

4. The certainty about whether the intervention represents a wise use of resources.

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Internal and External Review Processes
Internal review process:

* Guideline working group, full Task Force, scientific officers.

External review process:

* External review is undertaken at key stages:
* Protocol, systematic review, and draft guideline
* Reviewers include:
* Generalist and disease-specific stakeholders
* Federal and Provincial/Territorial stakeholders
* Academic peer reviewers.

CMAJ conducts an independent peer review process to review guidelines prior to publication.

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Findings

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Key Findings
No studies were found on screening for thyroid dysfunction

The effectiveness of treating asymptomatic adults for screen-detected hypothyroidism results in little to no difference in clinical outcomes.

No studies on treating screen-detected hyperthyroidism were found.

No studies on patient values and preferences were found.

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Recommendation
For practitioners on preventive health screening in a primary care setting: We recommend against screening for thyroid dysfunction among asymptomatic nonpregnant adults aged 18 years and older (strong recommendation, low-certainty evidence).
The recommendation does not apply to patients with previously diagnosed thyroid disease or thyroid surgery, exposure to medications known to affect thyroid function (e.g., lithium, amiodarone), exposure to thyroid radioiodine therapy, or radiotherapy to the head or neck, or pituitary or hypothalamic diseases.

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Certainty of Evidence
Overall certainty of evidence supporting this recommendation is considered low. The included studies on treating screen-detected hypothyroidism had issues with indirectness (some studies only included adults 65 years and older); imprecision (some of the estimates of effect came from studies with small sample sizes), and study design (cohort studies).

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Rationale for a recommendation against screening:

Low certainty evidence was available on the effectiveness of screening (benefits and harms) among adults aged 18 years and older.

No evidence on screening effectiveness.

* Low-certainty evidence on effectiveness of treating screen-detected hypothyroidism showed little to no benefit to patients.
* Potential harms include: diagnosis of transient thyroid dysfunction, the need for follow-up testing and long-term monitoring, increased treatment burden.
* Screening for thyroid dysfunction in asymptomatic nonpregnant adults is not likely to confer clinical benefit, but could lead to unnecessary treatment for some patients and consume resources.

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Recommendations from other organizations:

British Columbia Ministry of Health: Routine thyroid function testing is not recommended in asymptomatic adults. However, testing may be indicated when non-specific signs and symptoms are present in patients at risk for thyroid disease.

Considering the high prevalence of thyroid disease, particularly hypothyroidism in women, and the fact that some studies have shown that affected women may benefit from early treatment, it is recommended that clinicians maintain a high index of suspicion and investigate individuals with vague symptoms that could be related to thyroid dysfunction.

Toward Optimized Practice: Do not test patients who are asymptomatic, seemingly healthy, having a periodic exam.

United States Preventive Services Task Force: concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for thyroid dysfunction in nonpregnant, asymptomatic adults.

American Thyroid Association and American Association of Clinical Endocrinologists: Screening for hypothyroidism should be considered in patients over the age of 60. This recommendation was downgraded because there is strong evidence that hypothyroidism is common in this group but insufficient evidence of benefit or cost effectiveness.

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Knowledge gaps:
Future trials should evaluate:

The effectiveness of screening versus not screening asymptomatic nonpregnant adults for thyroid dysfunction

The effectiveness of screening versus not screening adults with other concomitant conditions (e.g., cardiovascular diseases, type 1 diabetes mellitus, or other autoimmune diseases).

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Implementation Considerations

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This recommendation only applies to screening asymptomatic nonpregnant adults aged 18 years and older.

While the Task Force recommends against routinely screening for thyroid dysfunction in this population, clinicians should remain alert to signs and symptoms (e.g., unusual fatigue, unexpected weight gain, menstrual irregularities, goiter, etc.) or risk factors (e.g., pituitary or hypothalamic diseases) suggestive of thyroid dysfunction and investigate accordingly.

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Knowledge Translation (KT) Tools
The Task Force has created a Q&A KT tool to support the implementation of the guideline into clinical practice.

After the public release, this tool will be freely available for download in both French and English on the website: www.canadiantaskforce.ca

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For more information on the details of this guideline please see:

Canadian Task Force on Preventive Health Care website: www.canadiantaskforce.ca

Email: info@canadiantaskforce.ca

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The following organizations have endorsed the guideline:

* Canadian Society of Endocrinology and Metabolism
* Nurse Practitioner Association of Canada
* College of Family Physicians of Canada

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Thank you.