

Screening for Thyroid Disease: Recommendation Statement

U.S. Preventive Services Task Force*

This statement summarizes the current U.S. Preventive Services Task Force (USPSTF) recommendations on screening for thyroid disease and updates the 1996 recommendations on this topic. The complete USPSTF recommendation statement on this topic, which includes a brief review of the supporting evidence, is available through the USPSTF Web site (www.preventiveservices.ahrq.gov), the National Guideline Clearinghouse (www.guideline.gov), and in print through the Agency for Healthcare Research and Quality Publications Clearinghouse (telephone, 800-358-9295; e-mail, ahrqpubs.gov). The complete information on which this statement

is based, including evidence tables and references, is available in the accompanying article in this issue and in the summary of the evidence and systematic evidence review on the Web sites already mentioned. The recommendation statement and article are also available in print through the Agency for Healthcare Research and Quality Publications Clearinghouse.

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www.annals.org

See related article on pp 128-141.

* For a list of the members of the U.S. Preventive Services Task Force, see the Appendix.

SUMMARY OF THE RECOMMENDATION

The U.S. Preventive Services Task Force (USPSTF) concludes the evidence is insufficient to recommend for or against routine screening for thyroid disease in adults. This is a **grade I recommendation**. (See **Appendix Table 1** for a description of the USPSTF classification of recommendations.)

The USPSTF found fair evidence that the thyroid-stimulating hormone (TSH) test can detect subclinical thyroid disease in people without symptoms of thyroid dysfunction but poor evidence that treatment improves clinically important outcomes in adults with screen-detected thyroid disease. (See Appendix Table 2 for a description of the USPSTF classification of levels of evidence.) Although the yield of screening is greater in certain high-risk groups (for example, postpartum women, people with Down syndrome, and the elderly), the USPSTF found poor evidence that screening these groups leads to clinically important benefits. There is the potential for harm caused by false-positive screening tests; however, the magnitude of harm is not known. There is good evidence that overtreatment with levothyroxine occurs in a substantial proportion of patients, but the long-term harmful effects of overtreatment are not known. As a result, the USPSTF could not determine the balance of benefits and harms of screening asymptomatic adults for thyroid disease.

CLINICAL CONSIDERATIONS

Subclinical thyroid dysfunction is defined as an abnormal biochemical measurement of thyroid hormones without any specific clinical signs or symptoms of thyroid disease and no history of thyroid dysfunction or therapy. This includes individuals who have mildly elevated TSH and normal thyroxine (T₄) and triiodothyronine (T₃) levels (subclinical hypothyroidism) or low TSH and normal T₄ and T₃ levels (subclinical hyperthyroidism). Individuals with symptoms of thyroid dysfunction, or those with a

history of thyroid disease or treatment, are excluded from this definition and are not the subject of these recommendations.

When used to confirm suspected thyroid disease in patients referred to a specialty endocrine clinic, TSH has a high sensitivity (98%) and specificity (92%). When used for screening primary care populations, the positive predictive value of TSH in detecting thyroid disease is low; furthermore, the interpretation of a positive test result is often complicated by an underlying illness or by frailty of the individual. In general, values for serum TSH level below 0.1 mU/L are considered low and values above 6.5 mU/L are considered elevated.

Clinicians should be aware of subtle signs of thyroid dysfunction, particularly among those at high risk. People at higher risk for thyroid dysfunction include the elderly, postpartum women, those with high levels of radiation exposure (>20 mGy), and patients with Down syndrome. Evaluating for symptoms of hypothyroidism is difficult in patients with Down syndrome because some symptoms and signs (for example, slow speech, thick tongue, and slow mentation) are typical findings in both conditions.

Subclinical hyperthyroidism has been associated with atrial fibrillation; dementia; and, less clearly, osteoporosis. However, progression from subclinical to clinical disease in patients without a history of thyroid disease is not clearly established.

Subclinical hypothyroidism is associated with poor obstetric outcomes and poor cognitive development in children. Evidence for dyslipidemia, atherosclerosis, and decreased quality of life in adults with subclinical hypothyroidism in the general population is inconsistent and less convincing.

RECOMMENDATIONS OF OTHER GROUPS

The American Thyroid Association recommends measuring thyroid function in all adults beginning at age 35 years and every 5 years thereafter, noting that more frequent screening may be appropriate in high-risk or symptomatic individuals (1). The Canadian Task Force on the Periodic Health Examination recommends maintaining a high index of clinical suspicion for nonspecific symptoms consistent with hypothyroidism when examining perimenopausal and postmenopausal women (2). The American College of Physicians recommends screening women older than age 50 years with 1 or more general symptoms that could be caused by thyroid disease (3). The American Association of Clinical Endocrinologists recommends TSH measurement in women of childbearing age before pregnancy or during the first trimester (4). The American College of Obstetricians and Gynecologists recommends that physicians be aware of the symptoms and risk factors for postpartum thyroid dysfunction and evaluate patients when indicated (5). The American Academy of Family Physicians recommends against routine thyroid screening in asymptomatic patients younger than age 60 years (6).

APPENDIX

Members of the U.S. Preventive Services Task Force are Alfred O. Berg, MD, MPH, *Chair*, (University of Washington, Seattle, Washington); Janet D. Allan, PhD, RN, CS, *Vice-Chair* (University of Maryland Baltimore, Baltimore, Maryland); Paul Frame, MD (Tri-County Family Medicine, Cohocton, and University of Rochester, Rochester, New York); Charles J. Homer, MD, MPH (National Initiative for Children’s Healthcare Quality, Boston, Massachusetts); Mark S. Johnson, MD, MPH (University of Medicine and Dentistry of New Jersey–New Jersey Medical School, Newark, New Jersey); Jonathan D. Klein, MD, MPH (University of Rochester School of Medicine, Rochester, New York); Tracy A. Lieu, MD, MPH (Harvard Pilgrim Health Care and Harvard Medical School, Boston, Massachusetts); C. Tracy Orleans, PhD (The Robert Wood Johnson Foundation, Princeton, New Jersey); Jeffrey F. Peipert, MD, MPH (Women and Infants’ Hospital, Providence, Rhode Island); Nola J. Pender, PhD, RN (University of Michigan, Ann Arbor, Michigan); Albert L. Siu, MD, MSPH (Mount Sinai School of Medicine, New York, New York); Steven M. Teutsch, MD, MPH (Merck & Co., Inc., West Point, Pennsylvania); Carolyn Westhoff, MD, MSc (Columbia University, New York, New York); and Steven H. Woolf, MD, MPH (Virginia Commonwealth University, Fairfax, Virginia). This list includes members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to www.ahrq.gov/clinic/uspstfab.htm.

From the U.S. Preventive Services Task Force, Agency for Healthcare Research and Quality, Rockville, Maryland.

Appendix Table 1. U.S. Preventive Services Task Force Grades and Recommendations*

Grade	Recommendation
A	The USPSTF strongly recommends that clinicians provide [the service] to eligible patients. <i>The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.</i>
B	The USPSTF recommends that clinicians provide [the service] to eligible patients. <i>The USPSTF found at least fair evidence that [the service] improves important health outcomes and concludes that benefits outweigh harms.</i>
C	The USPSTF makes no recommendation for or against routine provision of [the service]. <i>The USPSTF found at least fair evidence that [the service] can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.</i>
D	The USPSTF recommends against routinely providing [the service] to asymptomatic patients. <i>The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.</i>
I	The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing [the service]. <i>Evidence that the [service] is effective is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</i>

* The U.S. Preventive Services Task Force (USPSTF) grades its recommendations according to 1 of 5 classifications (A, B, C, D, I) reflecting the strength of evidence and magnitude of net benefit (benefits minus harms).

Appendix Table 2. U.S. Preventive Services Task Force Grades for Strength of Overall Evidence*

Grade	Definition
Good	Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes
Fair	Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies; generalizability to routine practice; or indirect nature of the evidence on health outcomes
Poor	Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes

* The U.S. Preventive Services Task Force (USPSTF) grades the quality of the overall evidence for a service on a 3-point scale (good, fair, poor).

Disclaimer: The USPSTF recommendations are independent of the U.S. government. They do not represent the views of the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Public Health Service.

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References

- Ladenson PW, Singer PA, Ain KB, Bagchi N, Bigos ST, Levy EG, et al. American Thyroid Association guidelines for detection of thyroid dysfunction. *Arch Intern Med.* 2000;160:1573-5. [PMID: 10847249]
- Canadian Task Force on the Periodic Health Examination. *Canadian Guide*

to Clinical Preventive Health Care. Ottawa: Canada Communication Group; 1994:611-8.

3. Clinical guideline, part 1. Screening for thyroid disease. American College of Physicians. *Ann Intern Med.* 1998;129:141-3. [PMID: 9669976]

4. **AACE Thyroid Task Force.** American Association of Clinical Endocrinologists medical guidelines for clinical practice for the evaluation and treatment of hyperthyroidism and hypothyroidism. *Endocr Prac.* 2002;8:457-69. Accessed at

www.aace.com/clin/guidelines/hypo_hyper.pdf on 20 November 2003.

5. **American College of Obstetricians and Gynecologists.** Thyroid Disease in Pregnancy. Technical Bulletin no. 37. Washington, DC: American Coll of Obstetricians and Gynecologists; 2002.

6. **American Academy of Family Physicians.** Summary of Policy Recommendations for Periodic Health Examinations. Reprint no. 510. Leawood, KS: American Academy of Family Physicians; 2002.

At New Brunswick the inn was so full, Adams and Franklin had to share the same bed in a tiny room with only one small window. Before turning in, when Adams moved to close the window against the night air, Franklin objected, declaring they would suffocate. Contrary to convention, Franklin believed in the benefits of fresh air at night and had published his theories on the question. "People often catch cold from one another when shut up together in small close rooms," he had written, stressing "it is the frowzy corrupt air from animal substances, and the perspired matter from our bodies, which, being long confined in beds not lately used, and clothes not lately worn . . . obtains that kind of putridity which infects us, and occasions the colds observed upon sleeping in, wearing or turning over, such beds [and] clothes." He wished to have the window remain open, Franklin informed Adams.

"I answered that I was afraid of the evening air," Adams would write, recounting the memorable scene. "Dr. Franklin replied, 'The air within this chamber will soon be, and indeed is now worse than that without doors. Come, open the window and come to bed, and I will convince you. I believe you are not acquainted with my theory of colds.'" Adams assured Franklin he had read his theories; they did not match his own experience, Adams said, but he would be glad to hear them again.

So the two eminent bedfellows lay side-by-side in the dark, the window open, Franklin expounding, as Adams remembered, "upon air and cold and respiration and perspiration, with which I was so much amused that I soon fell asleep."

David McCullough
John Adams
New York: Simon & Schuster; 2001:155

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