



THYROID BLOOD TESTS

Inconsistent ordering of thyroid blood tests in the U.S.

BACKGROUND

There are many options for thyroid blood testing. Many thyroid tests are overused and may be inappropriate for the type of thyroid condition suspected. Recommendations for which thyroid tests should be ordered are different in patients who are not currently taking thyroid-related medications, compared to those who are. TSH is usually the initial test if either hypothyroidism or hyperthyroidism are suspected. Further, screening for thyroid disease is currently controversial with no universally accepted recommendations.

Overall, thyroid blood testing has steadily increased over the past few decades, corresponding with rising healthcare costs. This study was done to assess how frequently certain thyroid blood tests were ordered in the U.S. across multiple healthcare organizations.

THE FULL ARTICLE TITLE

Lin, DC et al for the Thyroid Benchmarking Group. Multicenter Benchmark Study Reveals Significant Variation in Thyroid Testing in the United States. *Thyroid* 27(10): 1232-1245, 2017.

SUMMARY OF THE STUDY

The researchers studied data obtained from 82 laboratories associated with 24 U.S. unique healthcare organizations. The study reports on how often the following thyroid blood tests in each of these laboratories were ordered over the entire 2015 calendar year: thyroid

stimulating hormone (TSH), free T₄ (fT₄), total T₄ (TT₄), free T₃ (fT₃), total T₃ (TT₃), T₃ uptake (T₃u), and reverse T₃ (rT₃).

TSH was the most frequent blood test ordered, consistent with its role as the usual the initial screening test if either hypothyroidism or hyperthyroidism are suspected. The study reported the order of subsequent thyroid tests following an initial serum TSH result. For every 100 TSH tests ordered, there were 14 fT₄'s, three TT₄'s, four fT₃'s, two TT₃'s, 0.1 rT₃'s, and 0.1 T₃u's. Tests for fT₄ were nine times as common as those for TT₄, while those for fT₃ and TT₃ were mostly evenly split. One of the most variable thyroid tests was whether a rT₃ level was obtained following an initially abnormal TSH.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

From this sample of 82 U.S. clinical laboratories, there is considerable variation in the type of thyroid blood tests ordered by clinicians. This suggests that there is a need for better guidance in selecting the appropriate thyroid blood tests to obtain. Such measures would improve patient care and reduce unnecessary testing costs.

— Angela M. Leung, MD, MSc

ATA THYROID BROCHURE LINKS

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

ABBREVIATIONS & DEFINITIONS

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Hyperthyroidism: a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds

(Methimazole, Propylthiouracil), radioactive iodine or surgery.

TSH: thyroid stimulating hormone — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

