Thyroid Stimulating Hormone (TSH)

CPT Code 84443
Sample Type Serum
Order Code C157
Tube Type Tiger Top

Thyroid stimulating hormone can help to identify:
- Hypo-/Hyperthyroidism
- Subclinical hypothyroidism
- Hashimoto’s disease

Description
TSH is a hormone synthesized and secreted by the pituitary gland. It stimulates the thyroid gland to secrete the hormones thyroxine (T4) and triiodothyronine (T3) which in turn regulate the release of TSH from the pituitary in a negative feedback loop. TSH is not tightly regulated as it is under control of thyroid releasing hormone (TRH) and feedback from fluctuating systemic thyroid hormones which are subject to binding issues, iodine effects, and many other factors.

Clinical Use
The thyroid stimulating hormone test is used to monitor thyroid function and to diagnose primary and secondary hypo- and hyperthyroidism. It may also be used to monitor hormone replacement therapy in individuals with hypothyroidism, and to monitor infertility in women.

Clinical Significance
- Healthy populations may have a right-skewed distribution of TSH with a number of individuals exhibiting higher TSH concentrations. This is due to the fact that individuals labeled ‘healthy’ may in fact have subclinical disease. Subclinical hypothyroidism is defined as a serum TSH level above the upper limit of normal and a serum free T4 (FT4) concentration within the reference range.

Sample Type
The TSH test should be performed on a serum sample.

Commercial Insurance or Medicare Coverage
Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination), have been established or posted by CMS (Medicare & Medicaid). Limited information has been posted by the majority of the larger Carriers (Aetna, United HealthCare, Cigna, Blues). Medical necessity and specificity of diagnosis should be provided when ordering this test.

Understanding Medical Necessity
The following ICD-10 codes for TSH are listed as a convenience for the ordering physician. The ordering physician should report the diagnosis code that best describes the reason for performing the test.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Diagnosis Code</th>
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<tbody>
<tr>
<td>Hypothyroidism, unspecified</td>
<td>E03.9</td>
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<tr>
<td>Type 2 Diabetes Mellitus with Hyperglycemia</td>
<td>E11.65</td>
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<tr>
<td>Type 2 Diabetes Mellitus without Complications</td>
<td>E11.9</td>
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<tr>
<td>Other Specified Diabetes Mellitus without Complications</td>
<td>E13.9</td>
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<td>Vitamin D Deficiency, Unspecified</td>
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<td>Pure Hypercholesterolemia</td>
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<td>Mixed Hyperlipidemia</td>
<td>E78.2</td>
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<td>Other Hyperlipidemia</td>
<td>E78.4</td>
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<td>Hyperlipidemia, Unspecified</td>
<td>E78.5</td>
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<td>Postviral Fatigue Syndrome</td>
<td>G93.3</td>
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<tr>
<td>Essential (primary) Hypertension</td>
<td>I10</td>
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</table>
TSH (uU/mL)

0.400 - 4.500

Treatment Considerations

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

✔ Assess medication and other underlying medical issues.

• Fluctuations in serum TSH levels can be caused by:
  - Recent adjustments in medications used to treat hypothyroidism
  - Poor patient compliance with medications
  - Age
  - Recovery from severe illness
  - The presence of macromolecular complexes of TSH-IgG
  - The time of day of blood TSH sampling (up to 20% at varying times of draw)
  - Chronic immune thyroiditis (Hashimoto’s disease)
  - Thyroid injury
  - Drugs impairing thyroid function
  - Some diabetes medications

Note: TSH results are highly reproducible upon retesting of the same sample, but may vary within the same individual at different blood draw times in absence of disease.

• Serum TSH levels of more than 2.500 uU/mL and even above 5.000 uU/mL may represent conditions including euthyroid TSH elevation or subclinical hypothyroidism. Consider repeating TSH testing in 6 months in the absence of symptoms. If a repeat serum TSH is resulted as high, measurement of FT4 is indicated. This measurement reflects thyroid function better than total concentrations of either T3 or T4 as they are less affected by hormone binding proteins. If the serum FT4 is decreased, then thyroid hormone therapy should be considered². If the serum FT4 is within normal range, then the individual should continue to be evaluated for hypothyroidism². Measurement of anti-TPO (thyroid peroxidase antibodies) may also help diagnose hypothyroidism as they identify an autoimmune etiology associated with thyroid dysfunction. TSH remains the most powerful screening tool for thyroid dysfunction.

References
2. Surks MI et al. Subclinical thyroid disease: Scientific review and guidelines for diagnosis and management. JAMA. 2004; 291: 228-238.