TARGET POPULATION
Adults and children with suspected or confirmed primary thyroid dysfunction
EXCLUSIONS
Neonatal patients
Asymptomatic, seemingly healthy individuals having a periodic exam

RECOMMENDATIONS

✓ Order TSH as the single best initial test to diagnose primary hyperthyroidism and hypothyroidism when symptoms are present (See Table 1, and for at-risk see Table 2)

<table>
<thead>
<tr>
<th>Symptoms of Hypothyroidism</th>
<th>Symptoms of Hyperthyroidism</th>
<th>Patients at Increased Risk for Thyroid Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Weight gain</td>
<td>• Palpitations/tautycardia/atrial fibrillation</td>
<td>• Women over 45*</td>
</tr>
<tr>
<td>• Lethargy</td>
<td>• Widened pulse pressure</td>
<td>• Postpartum women</td>
</tr>
<tr>
<td>• Cold intolerance</td>
<td>• Nervousness and tremor</td>
<td>• Patients receiving drug therapies such as lithium and amiodarone (Category 5A &amp; 5B)</td>
</tr>
<tr>
<td>• Menstrual irregularities</td>
<td>• Heat intolerance</td>
<td>• Patients with other autoimmune diseases such as Type I diabetes</td>
</tr>
<tr>
<td>• Depression</td>
<td>• Weight loss</td>
<td>• Patients with a strong family history of thyroid disease</td>
</tr>
<tr>
<td>• Constipation</td>
<td>• Muscular weakness</td>
<td></td>
</tr>
<tr>
<td>• Dry skin</td>
<td>• Usually goiter is present</td>
<td>*Note: There is evidence to suggest increased risk for thyroid disease in patients over the age of 60</td>
</tr>
</tbody>
</table>

✓ Follow Category 1 for patients having suspected primary thyroid disease
✓ Follow Category 2 when patients are taking thyroid hormone replacement and dosage needs monitoring
✓ Follow Category 3 when patients are receiving thyroxine therapy for thyroid cancer
✓ Follow Category 4 when patients are pregnant and receiving thyroid hormone replacement
✓ Follow Category 5A or 5B when patients are receiving lithium or amiodarone
X DO NOT order TSH for suspected pituitary disease. FT4 is recommended
X DO NOT use TSH as an indicator of thyroid status in patients with severe non-thyroidal illness (e.g., CCU, IC, acute severe psychiatric illness)

CATEGORY 2: TSH USE IN THYROXINE THERAPY FOR TREATMENT OF HYPOTHYROIDISM

✓ Use L-Thyroxine for thyroid replacement. DO NOT use T3, T3/T4 combinations, or desiccated thyroid
✓ Target TSH in euthyroid range*
✓ Wait for TSH equilibration – TSH equilibration requires eight to 12 weeks after any thyroxine dosage change

These recommendations are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. They should be used as an adjunct to sound clinical decision making.
Order a yearly TSH once a stable dose is achieved – yearly TSH is sufficient
*Patients on thyroxine therapy with TSH < 0.2 mU/L may have increased health risk

**CATEGORY 1: SUSPECTED HYPER OR HYPOTHYROIDISM** *(SEE ALGORITHM BELOW)*
*For patients receiving thyroid hormone therapy follow Category 2*
- Patients with thyrotoxicosis usually have a TSH value < 0.1 mU/L
- Thyroid antibodies are indicated in cases of hypothyroidism (TSH > 4mU/L) due to suspected autoimmune thyroid disease. Serum antibody (anti TOP) testing should only be performed once for the diagnosis. Serial testing has no clinical utility.

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**CATEGORY 3: TSH USE IN MONITORING THYROXINE THERAPY IN THYROID CANCER**
- Target: Achieve suppressed TSH (< 0.1 mU/L) in moderate to high risk patients, and TSH 0.1 – 0.5 mU/L in low risk patients, to prevent re-growth of cancer
**CATEGORY 4: PREGNANCY**

**PRACTICE POINT**

Subclinical hypothyroidism in the mother may lead to cognitive impairment in the infant. Achieving euthyroidism prior to pregnancy is ideal.

- For patients receiving thyroxine replacement:
  - Order TSH when pregnancy is confirmed and repeat every four to six weeks (due to increased demand for thyroxine during pregnancy)
  - Thryoxine dose can be adjusted as required every six weeks based on TSH levels
  - Target: TSH 0.2 – 2.5 mU/L in the first trimester, and 0.2 – 3.5 mU/L after 20 weeks gestation (Category 2)
- Recommend a TSH receptor antibody (TRAB) level for patients with a history of Grave’s disease
- Consult endocrinology if TRAB ≥ 5 x normal

**CATEGORY 5A: PATIENTS RECEIVING LITHIUM**

- TSH at baseline
  - Normal
    - Commence Therapy
      - TSH at 3 months
        - Normal
          - Repeat every 6 to 12 months
        - Abnormal
- Abnormal
  - Follow Category 1 Algorithm

**CATEGORY 5B: PATIENTS RECEIVING AMIODARONE**

Amiodarone may cause elevated FT4 in the presence of normal TSH (drug effect to inhibit T4 conversion)

- Recommend pre-treatment TSH and three month post treatment TSH, FT4 and FT3