Thyroid Cascader – Quick User Guide

The Thyroid Cascader is an interactive clinical decision-support tool designed to help clinicians navigate thyroid-related diagnostic pathways. It combines a lab-pattern interpreter with structured decision trees for Hypothyroidism, Hyperthyroidism, and Thyroid Nodules, guiding users step-by-step to a diagnostic pattern.

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1. Home Screen Overview

The home screen provides two main entry options:

Option 1 – Enter labs

Use this when you already have thyroid function tests (TFTs). Select the status of:

- **TSH – Elevated, Normal, or Decreased**

- **Free T4 – Elevated, Normal, or Decreased**

- **T3 – Elevated, Normal, Decreased, or Unknown / not measured**

Press Interpret to generate a result.

The interpretation will show:

- **A diagnostic label (e.g., *Primary hypothyroidism*, *Subclinical hyperthyroidism*, *Euthyroid sick syndrome*, *Central hypothyroidism*)**

- **A list of corresponding etiologies**

If the TFT pattern is consistent with:

- **Primary hyperthyroidism (overt), or**

- **Subclinical hyperthyroidism**

an additional button appears:

→ Start hyperthyroid pathway

Pressing this takes you directly into the Hyperthyroid cascade (Option 2).

If the results are physiologically normal or non-specific, an explanatory message appears instead of a diagnosis.

Option 2 – Select the presentation

Use this when beginning with the clinical scenario. Three presentation tiles are available:

- **Hypothyroid symptoms**

- **Hyperthyroid symptoms**

- **Thyroid nodule**

Selecting a tile launches the corresponding stepwise decision tree.

Each path contains one decision per screen and guides you toward likely diagnostic patterns.

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2. Navigating a Cascade

Each cascade (hypo, hyper, nodule) unfolds as a series of decision nodes.

At each step:

1. Read the question or instruction.

2. Choose the response that matches your clinical findings.

3. Automatically advance to the next node.

Navigation controls:

- **Back – return to the previous step**

- **Home – return to the main menu**

- **Restart – restart the cascade from the beginning (available on outcome screens)**

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3. Hyperthyroid Cascade – Expanded Version

The hyperthyroid pathway includes:

Branching by initial labs:

- **Overt hyperthyroidism (TSH low, FT4/T3 high)**

- **Subclinical hyperthyroidism (TSH low, FT4/T3 normal)**

- **TSH-mediated hyperthyroidism (inappropriately normal/high TSH)**

- **Hyperthyroidism unlikely (normal/high TSH with normal hormones)**

Overt hyperthyroidism details:

- **Evaluation of Graves disease (clinical features → TRAb → uptake scan)**

- **Radioactive iodine uptake patterns**

  - **Diffuse → Graves**

  - **Nodular → toxic adenoma or multinodular goiter**

- **Low uptake hyperthyroidism**
    - **Positive antibodies → early Hashimoto (hashitoxicosis)**
    - **High thyroglobulin → endogenous hyperthyroidism (e.g., thyroiditis)**
    - **Low thyroglobulin → exogenous thyroid hormone use**

These now match the latest flowchart-based decision structure.

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4. Outcome Screens

Each cascade ends in a clear diagnostic statement accompanied by a brief clinical note.

Outcome screens provide two actions:

- **Restart this cascade**
- **Choose a different path (return home)**

The lab interpreter (Option 1) behaves similarly. When a hyperthyroid pattern is detected, it provides an additional shortcut to launch the detailed hyperthyroid cascade.

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5. Clinical Use Notes

- **This tool supports—but does not replace—clinical judgment.**
- **Always integrate:**
    - **Full clinical history and exam**
    - **Exact numeric lab values and reference ranges**
    - **Institutional imaging and biopsy protocols**
- **Consider the effects of:**
    - **Biotin supplementation**
    - **Assay interference**
    - **Non-thyroidal illness (euthyroid sick syndrome)**

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6. Intended Users

- **Residents and fellows**
- **Hospitalists and general internists**
- **Endocrinology specialists**

- **APPs (NP/PAs)**

- **Clinicians evaluating thyroid-related presentations**

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7. Disclaimer

This tool is educational and decision-support only. It does not replace clinical judgment, institutional guidelines, or specialist consultation.