Radiopharmaceutical: I-123 or I-131 Sodium Iodide capsules
Dose: 200 to 300 µCi I123 or 100 to 200 µCi I131
T1/2: 13.2 hours for I123 and 8.03 days for I131
Energy: 159 keV for I123 and 364 keV for I131 gamma rays.
CPT: 78012 (single or multiple uptakes)
HCPCS: A9516 (I123 – per 100 µCi); A9528 (I131 – per mCi)

Indications:
Approved indications include, but are not limited to:
1. Evaluation of the size and location of thyroid tissue.
2. Evaluation of hyperthyroidism.
3. Evaluation of suspected focal (i.e., masses) or diffuse thyroid disease.
4. Evaluation of clinical laboratory tests suggestive of abnormal thyroid function.
5. Evaluation of patients at risk for thyroid neoplasm (e.g., post neck irradiation).
6. Assessment of the function of thyroid nodules identified on clinical examination or ultrasound or by other diagnostic imaging.
7. Evaluation of congenital thyroid abnormalities.
8. Differentiating hyperthyroidism from other forms of thyrotoxicosis (e.g., thyroiditis and thyrotoxicosis factitia).
9. Calculating iodine-131 administered activity for patients to be treated for hyperthyroidism or ablative therapy.

Patient Preparation:
• Patient MUST be off of any thyroid medications (unless requesting physician wants to evaluate effectiveness of drug) for a specified amount of time:

Medication Length of time

PTU (Propylthiouracil) 1 week (7 days)
Tapazole (Methimazole) 1 week (7 days)
Cytomel (Liothyronine Sodium) 3 weeks
Levoxyl (Levothyroxine) 6 weeks
Synthroid (Levothyroxine) 6 weeks
Levothroid (Levothyroxine) 6 weeks
Unithroid (Levothyroxine) 6 weeks
Amiodarone (Cordarone, Pacerone) Could be 6 months, Radiologists' discretion.
IV contrast (X-ray, CT, etc…) 4 to 6 weeks

• A recent thyroid profile (lab work) TS, T3, T4 is essential prior to scheduling this procedure. Lab results with normal reference values are to be requested.
• No seafood or iodized salt products for 48 hours prior to pill ingestion.

Equipment:
1. Philips Skylight (Pinhole collimator)
2. Philips Forte (Pinhole collimator)
3. Philips Vertex Plus (Pinhole collimator)
4. AtomLab Thyroid Uptake Probe.

Procedure:
1. Patient will take 1 to 2 pills by mouth on day one. He or she will be instructed not to eat anything for 1 hour after taking the pill(s). Also, the patient is not to have any seafood or iodized salt products until the test is complete.
2. At 24 hours post ingestion, patient will return to NM department and a 24 hour uptake and scan will be performed. A 6 hour uptake may be performed, at ordering physician's request. Be sure that the authorization is correct.
3. Acquire ANTERIOR W/ MARKER, ANTERIOR, LAO, and RAO views. If substernal thyroid tissue is suspected, acquire one anterior view of the chest using the VXUR (parallel-hole) collimator.

Special Procedures:

• **I123 Cytomel Suppression Scan:** Follow the above preparation instructions. In addition, however, patient should be given prescription (from ordering physician's office) for Cytomel (Liothyronine Sodium) at 100 µg/day for 7 days. On day 8, administer 123I capsule and perform standard uptake and scan protocol.
• **Tc99M-Pertechnetate Thyroid Scan:** Adult Dose is 15 mCi of 99mTc-Pertechnetate. At 20 minutes post injection, acquire an ANTERIOR view of the neck and chest using the VXUR or VXUR collimator, and then proceed with standard views using the pinhole (ANTERIOR W/ MARKER, ANTERIOR, LAO, and RAO).

Acquisition Parameters:
• Collimator ID: HEPH on Detector 2.
• Matrix: 256 x 256.
• Zoom: 2.19 x (27.3) cm
• Total Time: 600 seconds
• Total Kcounts: 35
• Position: Supine
• Orientation: Head First

Processing:
1. LEFT click on ALL IMAGE DISPLAY.
2. Select the proper patient, and LEFT click in PROCEED.
3. Select the ANT W/ MARKER, ANT, RAO, and LAO images, in that order, and the LEFT click on PROCEED.
4. LEFT click on the 4-zone image display.
5. RIGHT click on the annotation tool PENCIL TOOL.
6. RIGHT click on the THYROID_US labeling default.
7. Enter the dose amount and uptake percentage on the image.
8. Window and level to the proper intensity.
9. Snapshot the image by LEFT clicking on the CAMERA TOOL.
10. LEFT click on QUIT.
11. Use the CAMERA TOOL on the main screen to double snapshot the image.
12. DICOM send the double snapshot to PACS in the DEFAULT grey color scale.
13. Submit for radiologist interpretation.