GUNDERSEN HEATLH SYSTEM
NUCLEAR MEDICINE DEPARTMENT
PROTOCOL MANUAL

PROCEDURE: **THYROID UPTAKE**

SECTION: **ENDOCRINOLOGY 3.2**

ORIGINAL DATE: **1 - 12 - 05**

DATE REVISED: **1 – 25 - 19**

REVIEWED: **ANNUAL**

Indications	Diagnosis of Grave's disease. Evaluation of sub acute and chronic thyroiditis
Contraindications	(See patient prep)
Exam time length	Initially: 20 minutes for radiopharmaceutical administration Delayed measurement at 4 or 24 hours: 15 minutes
Patient Preparation	Patient must be off Thyroid Hormones: 1.Thyroxine (T-4) for at least 6 weeks 2. Triiodothyronine for at least 2 weeks (per Dr. Caplan 7/2013) The patient must not be taking antithyroid medicines: 1.Propylthiouracil (PTU) and tapazole for at least 3 days The patient must not have had intravenous or intrathecal iodinated contrast material (IVP, CT with contrast, myelogram, angiogram, heart catheterization) for at least 4 weeks. If study needs to be done prior to the 4 –week delay, a Nuclear Medicine Reading Radiologist must be notified. Ensure that the patient is not using any drugs/chemical substances that would interfere with the study, i.e., kelp, herbal preparations, over the counter medications, mineral/vitamin supplements. (See attached sheet) NPO for at least 1 hour after ingesting the radiopharmaceutical
Radiopharmaceutical & Dose	I-123 100-200 uCi I-131 40-75 uCi If uptake for Total Body Imaging is ordered, see Thyroid WB protocol 3.3 Endocrinology. Perform bioassay within 3 days after administration of any of the following: • any dose of liquid I-131; or • dose >100mCi I-131 in capsules; or • total dose administered by same tech in one 24hr period >100 mCi I-131 in capsules.
Administration Technique	Oral

Thyroid Uptake: Acquisition Protocol

** (For the following procedure, the technologist must stay with the probe while counting the standard source for the uptake measurement and should not leave the standard source unattended at any time)

Pt swallows a capsule or solution of radioactive iodine and is asked to return 4 or 24 hours later to measure the percent uptake of the thyroid gland. The percent uptake of radioactive iodine is calculated by measuring a radioactive standard and the amount contained in the patient's thyroid gland 4 or 24 hours after ingestion. The radioactive dose is counted using the Captus probe.

When patient first arrives, **ADD** the patient to the "patient directory". "Demographic" and "dosage" data must be entered. The "selected protocol" should be confirmed. Normally "I-123 uptake" is chosen.
After thoroughly explaining the procedure, **ADMINISTER** the radiopharmaceutical to the patient. This records the date and time.

When the patient arrives, Select the patient you will be working with from the "patient directory". Immediately prior to measuring the patient's activity, **COUNT the standard** radioiodine dose in the neck phantom, at the proper distance. Computer will prompt the necessary steps. Remove the capsule. **COUNT the standard background.** Bring the patient into the room, **COUNT the patient's background** activity by taking a measurement with the probe positioned over the patient's thigh at the proper distance. Next, **COUNT the patient's thyroid** activity by adjusting the probe the proper distance in front of the patient's neck. All counts are taken the same amount of time-1 minute.

Data Processing:

The computer will calculate the "% uptake" from the patient's measurements.

$$\frac{\text{Patient's activity} - \text{patient's background}}{\text{Standard activity} - \text{standard background}} \times 100 = \%\ \text{uptake}$$

Print out a copy of the report results. Scan these into the correct accession number per protocol. These will be stored along with any additional images and will be available for the Radiologist to review.

Normal values

4 hour uptake = 0-12 %
24 hour uptake = 0-24 %

Pediatric Normal Values

- 6 hours: 3 - 16% ; 24 hours: 8 - 25%

  At University of Iowa Children's hospital.
  These are the same as our adult values.
  Our 4 hour values are 3-12 %