

**GUNDERSEN HEALTH SYSTEM  
NUCLEAR MEDICINE DEPARTMENT  
PROTOCOL MANUAL**

**PROCEDURE:** **GASTRIC EMPTYING STUDY**  
**Adult and Pediatric**

**SECTION: GASTROINTESTINAL 4.3**

**ORIGINAL DATE:** 4 - 24 - 00

**DATE REVISED: 6 – 14 - 22**

REVIEWED: ANNUAL

Indications	Evaluate patients with symptoms that suggest an alteration of Gastric Emptying and/or motility
Contraindications	Allergy or unable to tolerate eggs (Standard meal would need to be replaced. Review case with Radiologist)
Exam time length	4.5 hours
Patient Preparation	1. Overnight fast or 6 hours 2. No barium studies within 2 days prior to scan. 3. Referring physician determines what medications are to be discontinued prior to study. Medications not limited to those listed below: Prokinetic agents (metoclopramide, tegaserod, domperidone and erythromycin) are stopped 2 days prior unless directed otherwise 4. Pediatric or patient tube fed: determine what type and amount of food patient normally eats.  Note: Diabetic patients should have fasting glucose <275 mg/dL. Record pre-exam glucose.
Radiopharmaceutical & Dose	Adult: 1 mCi, 99mTc Sulfur Colloid (or Nonabsorbable solid labeled with 99mTc -MAA) in egg. Pediatric: 0.02 mCi/ Kg (Min 0.25 mCi to Max 1.0 mCi)
Administration Technique	Oral; Note amount of meal consumed and blood glucose if appropriate. Would like to have patient finish meal within 10 minutes.

References:

1. Dr. Aberger- Meeting data from "Comprehensive Review of Gastroenterology 2004 - Greater than 10% retention in the stomach at 4-hours is abnormal."
2. Abell T, Camilleri M, et al. Consensus Recommendations for Gastric Empty Scintigraphy: A Joint Report of the American Neurogastroenterology and Motility Society and the Society of Nuclear Medicine. Journal of Nuclear Medicine Technology 2008; 36:44-5
3. Dr. Alan H. Maurer, DVD Teaching Program 2012 Clinical Nuclear Medicine- "Update on the Current Consensus Recommendations on Solid Meal GE Studies". Release date: August 5, 2012.
4. Kevin J. Donohoe, Alan H. Maurer, et al. Procedure Guideline for Adult Solid-Meal Gastric-Emptying Study 3.0\*. Journal of Nuclear Medicine Technology 2009.

## Tech notes- prep, ancillary items, tips & tricks

### 1-Allergy or unable to tolerate eggs?

Standard meal would need to be replaced w/ Liquid meal replacement + water - Patient drinks 8 oz (11.4 gm fat) bottle contents. Review case with Radiologist. Nutrition Therapy should have ENSURE-PLUS or equivalent nutritional product

### 2-Pediatric?

What does patient eat, how is patient fed and how much for typical feeding? Is feeding given over certain length of time (Tubes)? Can he/she lay still for 2 min?

### 3- Diabetic patient?

Patient to take ½ of normal insulin dose before they arrive. Use the Clinic lab's glucose meter from the first-floor location, please select 'Nuc Med Patient, Cleaned Meter'.

### 3-Standard meal

**Egg:** Place 4 oz. egg white product in heated pan, inject RpH. Fry the egg until fully cooked. Serve with two pieces of white toast + strawberry jam; Offer 120 ml of water with sandwich. (Tougas Meal)

**Non-egg-** Add RpH to small amount of meal and feed up to 5-10 min. Follow with rest of normal feeding and water to complete remaining feeding.

In patient notes, document: Time it takes patient to eat meal (best within 10-minutes), what percent of meal patient finishes (best with > 50% completed) and most recent blood sugar.

## Acquisition

**Time interval between  
tracer injection and  
imaging**

Time it takes patient to eat meal  
(best within 10 min).

Static

	Scan
<b>Collimator</b>	LEHR
<b>Patient Position</b>	Feet first, supine
<b>Scan Type</b>	Static
<b>Energy (keV)</b>	140 KeV
<b>Window</b>	±10%
<b>Matrix</b>	256 x 256
<b>Zoom/Time per view</b>	120 sec, acquire serial digital images, anterior and posterior, every 60 minutes
<b>Pixel Size (mm)</b>	2.22
<b># of Projections</b>	N/A
<b>CW or CCW</b>	N/A
<b>Orbit Type</b>	N/A
<b>Start Angle</b>	H-Mode
<b>End Angle</b>	N/A
<b>Gating</b>	N/A
<b>Gating Frames</b>	N/A
<b>R to R window</b>	N/A
<b>Uniformity and COR</b>	Yes
<b>Pre-filter Type</b>	N/A
<b>Filter cut-off/ Power</b>	N/A
<b>Motion Correction</b>	N/A
<b>Attenuation Correction</b>	N/A
<b>Normal Database Used</b>	N/A
<b>Recon. Filter</b>	
<b>Quant. Program</b>	N/A
<b>Screen Caps</b>	Clinical Summary Page
<b>PACs</b>	Clinical Summary Page

## Processing

- 1- Highlight patient name and all timed data sets.
- 2- Under 'All Applications' tab, Select 'Gastrointestinal processing'. Click 'ge' Container.
- 3-Press 'Start' and follow prompts; Draw Irregular ROI on ANT0 image, proceed to POST0 image.
  - a. The program will display each corresponding timed image set in the lower RT corner of the processing screen.
- 4-Continue to position ROI on each consecutive image set without changing ROI.
- 5- Create a screen cap of the 'Clinical Summary'
- 6- Click 'File" then 'Save and Exit'. Send screen cap of Clinical Summary to PACS