

TRA-MINW

Routine CT Neck + Chest W Venous

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In accordance with the ALARA principle, TRA policies and protocols promote the utilization of radiation dose reduction techniques for all CT examinations. For scanner/protocol combinations that allow for the use of automated exposure control and/or iterative reconstruction algorithms while maintaining diagnostic image quality, those techniques can be employed when appropriate. For examinations that require manual or fixed mA/kV settings as a result of individual patient or scanner/protocol specific factors, technologists are empowered and encouraged to adjust mA, kV or other scan parameters based on patient size (including such variables as height, weight, body mass index and/or lateral width) with the goals of reducing radiation dose and maintaining diagnostic image quality.

If any patient at a TRA-MINW outpatient facility requires CT re-imaging, obtain radiologist advice prior to proceeding with the exam.

The following document is an updated CT protocol for all of the sites at which TRA-MINW is responsible for the administration, quality, and interpretation of CT examinations.

Include for ALL exams

- **Scout:** Send all scouts for all cases
- **Reformats:** Made from *thinnest source* acquisition
 - Scroll Display
 - Axial recons - Cranial to caudal
 - Coronal recons - Anterior to posterior
 - Sagittal recons - Right to left
 - Chest reformats should be in separate series from Abdomen/Pelvis reformats, where applicable
- **kVp**
 - 100 @ <=140lbs
 - 120 @ >140lbs
- **mAs**
 - Prefer: Quality reference mAs for specific exam, scanner and patient size
 - Auto mAs, as necessary

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Indication: Cancer surveillance (mostly head and neck cancer)

Patient Position:

- **Chest:** Supine, feet down with arms above head
- **Neck:** Supine, feet down with arms down

Scan Range (CC z-axis):

- **Chest:** Lung apices through L1
- **Neck:** Top of orbital roof through neck base

Prep: None.

Oral Contrast: None.

IV Contrast Dose, Flush, Rate, and Delay:

- **1st Chest - Position arms up**
 - Dose (modify volume if using something other than Isovue 370)
 - < 200 lbs 75 mL Isovue 370
 - 200-250 lbs 100 mL Isovue 370
 - >250 lbs 125 mL Isovue 370
 - Flush: 40 mL saline
 - Rate: 2.5-3 mL/sec
 - Delay: Venous Chest – 60s

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- **2nd Neck – Reposition arms down**

- Immediately to follow chest
- Dose: Additional 50 mL Isovue 370 (*do not modify volume if using something other than Isovue 370*)
- Flush: 20 mL saline
- Rate: 2.5 mL/sec
- Delay: Venous Neck – 30s after start of additional contrast injection

Acquisitions: 2 (both post-contrast = 1st chest with arms up → reposition arms down → reinject → 2nd neck with arms down)

- **Venous phase chest - 60 second delay- arms up**
 - Single breath, full inspiration
- **Venous phase neck - 30 second delay after additional contrast - arms down**
 - Reinject immediately after chest scan (see above)

Series + Reformats:

1. **Venous phase neck**

- a. Axial 2 mm ST kernel
- b. Coronal 2 mm ST kernel
- c. Sagittal 2 mm ST kernel

2. **Venous phase chest**

- a. Axial 2 mm ST kernel
- b. Axial 2 mm lung kernel
- c. Axial 10 x 2 mm MIP ST kernel
- d. Coronal 2mm ST kernel
- e. Sagittal 2 mm ST kernel
- f. Axial 1.25 x 1 mm ST kernel (SuperD where doable)

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General Comments

NOTE:

Use of IV contrast is preferred for most indications *aside from*: pulmonary nodule follow-up, HRCT, lung cancer screening, and in patients with a contraindication to iodinated contrast (see below).

Contrast Relative Contraindications

- **Severe contrast allergy**: anaphylaxis, laryngospasm, severe bronchospasm
 - If there is history of severe contrast allergy to IV contrast, avoid administration of oral contrast
- **Acute kidney injury (AKI)**: Creatinine increase of greater than 30% over baseline
 - Reference hospital protocol (creatinine cut-off may vary)
- **Chronic kidney disease (CKD) stage 4 or 5** (eGFR < 30 mL/min per 1.73 m²) **NOT** on dialysis
 - Reference hospital protocol

Contrast Allergy Protocol

- Per hospital protocol
- Discuss with radiologist as necessary

Hydration Protocol

- For eGFR **30-45 mL/min** per 1.73 m²: Follow approved hydration protocol

IV Contrast (where indicated)

- Isovue 370 is the default intravenous contrast agent
 - See specific protocols for contrast volume and injection rate
- If Isovue 370 is unavailable:
 - Osmolality 350-370 (i.e., Omnipaque 250): Use same volume as Isovue 370
 - Osmolality 380-320 (i.e., Isovue 300, Visipaque): Use indicated volume + **25 mL** (*not to exceed 125 mL total contrast*)

Oral Contrast

- Dilutions to be performed per site/hospital policy (unless otherwise listed)
- Volumes to be given per site/hospital policy (unless otherwise listed)
- TRA-MINW document is available for reference if necessary (see website)

Brief Summary

- Chest only
 - ✓ Chest W, Chest WO
 - ✓ CTPE
 - ✓ HRCT
 - ✓ Low Dose Screening/Nodule
 - None

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- Pelvis only
 - ✓ Pelvis W, Pelvis WO
 - Water, full instructions as indicated
- Routine, excluding chest only and pelvis only
 - ✓ Abd W, Abd WO
 - ✓ Abd/Pel W, Abd/Pel WO
 - ✓ Chest/Abd W, Chest/Abd WO
 - ✓ Chest/Abd/Pel W, Chest/Abd/Pel WO
 - ✓ Neck/Chest/Abd/Pel W, Neck/Chest Abd Pel WO
 - ✓ CTPE + Abd/Pel W
 - TRA-MINW offices: Dilute Isovue-370
 - Hospital sites:
 - ED: Water, if possible
 - Inpatient: prefer Dilute Isovue 370
 - Gastrografin OK if Isovue unavailable
 - Avoid Barium (Readi-Cat)
 - FHS/MHS Outpatient: Gastrografin and/or Barium (Readi-Cat)
- Multiphase abdomen/pelvis
 - ✓ Liver, pancreas
 - Water, full instructions as indicated
 - ✓ Renal, adrenal
 - None
- CTA abdomen/pelvis
 - ✓ Mesenteric ischemia, acute GI bleed, endograft
 - Water, full instructions as indicated
- Enterography
 - Breeza, full instructions as indicated
- Esophogram
 - Dilute Isovue 370, full instructions as indicated
- Cystogram, Urogram
 - None
- Venogram
 - Water, full instructions as indicated