School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

CT Protocols for Revolution CT ES (without DLIR Purchasable Option)

Copyright © 2020

REF **Rev: 6.0**

Manufacturer:
School of Medicine and Public Health
University of Wisconsin-Madison
610 Walnut Street
Madison, WI 53726

Manufactured in USA

University of Wisconsin-Madison CT Protocols for Revolution CT ES (without DLIR Purchasable Option)

Table of Contents

Page No.

Table of Contents 2

Changes from Revision 5 to Revision 6 6

UW Protocol Resource Ecosystem 10

CT Protocol Scanner Compatibility Information 12

Direct Multi-Planar Reformat (DMPR) Protocols 13

Size Selection 15

Size Selection for Neck and C-Spine 17

Trauma Chest and CAP T-Spine Workflow 18

CT Perfusion Protocol: (Specific Instructions) 19

Protocols

Abdominal Protocols:

- Chest/Abd/Pelvis with IV Contrast: # 5.4/5.5/5.6 22
- Chest/Abd/Pelvis without IV Contrast: # 5.7/5.8/5.9 26
- CTPA for PE with Abd/Pelvis: # 5.19/5.20/5.21 30
- Trauma - Chest: # 5.22/5.23/5.24 36
- Trauma - Chest/Abd/Pelvis: # 5.25/5.26/5.27 39
- Abd/Pelvis: # 6.1/6.2/6.3 45
- Trauma - Abd/Pelvis: # 6.4/6.5/6.6 48
- High Image Quality Cancer Follow-up Abd/Pelvis: # 6.7/6.8/6.9 53
- Abd/Pelvis - Flank Pain: # 6.10/6.11/6.12 56
- Limited Follow-up Kidneys Only: # 6.13/6.14/6.15 58
- Abd/Pelvis - Colonography: # 6.16/6.17/6.18 60
- Abd/Pelvis - Urography: # 6.22/6.23/6.24 65
- Abd-Liver - Biphasic: # 6.25/6.26/6.27 68
- Abd-Liver - Triphasic: # 6.28/6.29/6.30 72
- Abd-Adrenal Gland - Adenoma: # 6.31/6.32/6.33 77

Abdominal Protocols (cont.):

Abd-Pancreas - Pancreas Cancer (Neoplasm Screening): # 6.40/6.41/6.42 81
Abd/Pelvis - Kidney Tumor: # 6.49/6.50/6.51 84
CTA Abd - Renal Donor: # 6.52/6.53/6.54 88
Abd-Small Bowel - Enterography: # 6.55/6.56/6.57 92
CTA Abd - Obscure GI Bleed: # 6.58/6.59/6.60 95
CTA Abd - Mesenteric Ischemia: # 6.61/6.62/6.63 99
Urothelial Tumor Follow-Up: # 6.70/6.71/6.72 103
Abd/Pelvis - Venogram (Pre-IVC Filter Removal): # 6.73/6.74/6.75 107
CTA Abd/Pelvis - Active Bleeder: # 6.79/6.80/6.81 109
Abd-Liver - Hepatocellular Carcinoma (HCC): # 6.82/6.83/6.84 114
Cystogram: # 8.10/8.11/8.12 118
Body Pelvis: # 8.16/8.17/8.18 121
Abd/Pelvis - R/O Hernia (Use Routine Abd/Pelvis Protocol) 124
Neck/Chest/Abd/Pelvis 127

Neuroradiology (Neuro) Protocols:

Brain - Routine and Pediatric NAT/Trauma (Helical Mode): # 1.1/11.1/11.2/11.3 . 130
Brain - Helical Scan with Angled Axial Reformations: # 1.2/11.4/11.5/11.6 136
Brain Post Thrombolysis Helical (GSI): # 1.4/11.28/11.29/11.30 141
3D CT (Craniosynostosis, Congenital Facial Anomaly): # 1.5/11.10/11.11/11.12 . 146
Stroke Deluxe - Total Cerebrovascular: # 1.6/11.16/11.17/11.18 149
CTA Head Only (Stenosis, Aneurysm, Unknown Bleed): # 1.7/11.19/11.20/11.21 157
CT Venography Head & Neck: # 1.9/11.25/11.26/11.27 164
Stealth-Stereotactic Head (Whole Brain Treatment Planning): # 1.10/11.13/11.14/11.15 171
Orbit - Routine: # 2.1/12.1/12.2/12.3 174
Facial Trauma - Routine: # 2.5/12.7/12.8/12.9 179
Pituitary Gland and Cavernous Sinus: # 2.6 184
Sinuses - Diagnostic: # 2.7/12.10/12.11/12.12 190
Adult Neck - Routine: # 3.1/3.2/3.3 196
Neck (Parathyroid Adenoma) Adult: # 3.5/3.6/3.7 202
Neck (Salivary Gland): # 3.9 210
CTA Neck Only (Cerebrovascular Disease): # 3.11/11.22/11.23/11.24 216
Neck (Papillary Hypervascular): # 3.13/3.14/3.15 221
Adult Cervical Spine (without Metal): # 3.16/3.17/3.18 228
Adult Cervical Spine (with Metal): # 3.19/3.20/3.21 235
Adult Lumbar Spine (without Metal): # 7.1/7.2/7.3 242
Adult Thoracic Spine (without Metal): # 7.4/7.5/7.6 248
Adult Lumbar Spine (with Metal): # 7.10/7.11/7.12 254
Adult Thoracic Spine (with Metal): # 7.13/7.14/7.15 260

Neuroradiology (Neuro) Protocols (cont.):

Pediatric Low-Dose Hydrocephalus: # 11.31/11.32 266
Pediatric Neck - Routine: # 13.1.1/13.2.1/13.4.1/13.6.1/13.8.1 270
Pediatric Cervical Spine: # 13.1.11/13.2.11/13.4.11/13.6.11/13.8.11 276
Pediatric Lumbar Spine: # 17.1.1/17.2.1/17.4.1/17.6.1/17.8.1 282
Pediatric Thoracic Spine: # 17.1.2/17.2.2/17.4.2/17.6.2/17.8.2 289

Chest Protocols:

Chest - Standard (Routine & High-Resolution): # 5.1/5.2/5.3 296
Chest - Low Dose Follow-up/Screening: # 5.10/5.11/5.12 301
Chest - CTPA for PE: # 5.16/5.17/5.18 304
Chest - Dynamic 3D Airway: # 5.70/5.71/5.72 308

Pediatric Protocols*:

Chest-Standard (Routine & High Resolution): # 15.1.1/15.2.1/15.4.1/15.6.1/15.8.1 .. 311
Peds Chest Dynamic 3D Airway: # 15.1.2/15.2.2/15.4.2/15.6.2/15.8.2 316
Chest Pectus: # 15.1.3/15.2.3/15.4.3/15.6.3/15.8.3 322
Chest CTPA for PE: # 15.1.4/15.2.4/15.4.4/15.6.4/15.8.4 325
Routine Chest/Abd/Pelvis: # 15.1.5/15.2.5/15.4.5/15.6.5/15.8.5 329
Trauma Chest/Abd/Pelvis: # 15.1.6/15.2.6/15.4.6/15.6.6/15.8.6 334
Routine Abd/Pelvis: # 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1 341
Acute Appendicitis - Abd/Pelvis: # 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1 345
Renal Stone/Flank Pain: # 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1 347
Triphasic Liver: # 16.1.3/16.2.3/16.4.3/16.6.3/16.8.3 349
Trauma Abd/Pelvis: # 16.1.4/16.2.4/16.4.4/16.6.4/16.8.4 354
Pediatric Neck/Chest/Abd/Pelvis 360

** NOTE: Neuro protocols for pediatric patients are in the Neuro Protocols section.*

Cardiovascular (CV) Protocols*:

Upper Extremity CTA: # 4.10/4.11/4.12 364
Non-Gated CTA (Chest/Abd/Pelvis): # 5.28/5.29/5.30 368
Subclavian CT Venogram: # 5.55/5.56/5.57 374
Post-Endostent Non-Con Volume Change (Abd/Pelvis only): # 6.43/6.44/6.45 377
Lower Extremity CTA: # 9.13/9.14/9.15 379

** NOTE: All non-cardiovascular chest protocols are in the Chest Protocols section.*

Musculoskeletal (MSK) Protocols:

Shoulder/Humerus (with or without Metal): # 4.1/4.2/4.3 383
Elbow/Forearm (without Metal): # 4.6 391
Elbow/Forearm (with Metal): # 4.7 397
Wrist (without Metal): # 4.8 403
Wrist (with Metal): # 4.9 409

Musculoskeletal (MSK) Protocols (cont.):

Chest Wall/Clavicle/AC Joint/SC Joint/Sternum/Ribs: # 4.13/4.14/4.15 415
Bony Pelvis/Hips/SI/Femur/FAI (without Metal): # 8.1/8.2/8.3 419
Bony Pelvis/Hips/SI/Femur/FAI (with Metal): # 8.4/8.5/8.6 424
Mako Hip: # 8.14 430
Ankle/Foot/Distal Tibia (without Metal): # 9.1 434
Ankle/Foot/Distal Tibia (with Metal): # 9.2 440
Knee/Tibia (without Metal): # 9.3 446
Knee/Tibia (with Metal): # 9.4 451
Mako Knee: # 9.7 456
Femoral Anteversion/Lower Extremity Rotational Study: # 9.8/9.9/9.10 460
Soft Tissue Extremity with IV Contrast: # 9.24/9.25/9.26 464

Pediatric Higher Image Quality (HIQ) Protocols*:

Chest-Standard (Routine & High Resolution): # 15.1.8/15.2.8/15.4.8/15.6.8/15.8.8 .. 467
Chest Pectus: # 15.1.10/15.2.10/15.4.10/15.6.10/15.8.10 471
Chest CTPA for PE: # 15.1.11/15.2.11/15.4.11/15.6.11/15.8.11 473
Routine Chest/Abd/Pelvis: # 15.1.12/15.2.12/15.4.12/15.6.12/15.8.12 475
Trauma Chest/Abd/Pelvis: # 15.1.13/15.2.13/15.4.13/15.6.13/15.8.13 477
Routine Abd/Pelvis: # 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6 482
Acute Appendicitis - Abd/Pelvis: # 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6 484
Renal Stone/Flank Pain: # 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6 485
Triphasic Liver: # 16.1.8/16.2.8/16.4.8/16.6.8/16.8.8 487
Trauma Abd/Pelvis: # 16.1.9/16.2.9/16.4.9/16.6.9/16.8.9 491
Pediatric Neck/Chest/Abd/Pelvis 494

** NOTE: Neuro protocols for pediatric patients are in the Neuro Protocols section.*

Changes from Revision 5 to Revision 6

As part of our ongoing UW Madison CT protocol optimization, we have made the following changes between our Revision 5 and Revision 6 release. These changes have been internally reviewed and validated by our team of Radiologists, Physicists, and CT Technologists, thereby fulfilling The Joint Commission mandate on protocol review. Detailed documentation of our compliance with The Joint Commission Standards regarding the performance element for CT protocol review is posted on our website https://uwgect.wiscweb.wisc.edu/

New Scanners Added

No new scanners were released with the Revision 6 protocol updates. UW protocols currently support the following scanners: Revolution EVO 32ch with ASiR; Revolution EVO 64ch with ASiR; Revolution EVO 64ch with ASiR-V; Revolution Frontier / Revolution Frontier ES / Revolution Discovery CT / Revolution HD / Discovery CT / Discovery CT750 HD; LightSpeed VCT; Optima CT580W; Revolution CT; Revolution CT (without DLIR Purchasable Option); Revolution CT ES; Revolution CT ES (without DLIR Purchasable Option); and Discovery IQ PET/CT.

New Protocols Added

Multiple protocols were added to the package this year, including: CTA for PE with Abd/Pelvis; CTA Abd/Pelvis - Active Bleeder; Urothelial Tumor Follow-up; Subclavian CT Venogram; MAKO Hip; MAKO Knee; Brain Post Thrombolysis Helical (GSI); Neck (Papillary Hypervascular); 3D CT (Craniosynostosis, Congenital Facial Anomaly); Pituitary Gland and Cavernous Sinus; Neck (Salivary Gland); Pediatric Low-Dose Hydrocephalus; Pediatric Cervical Spine; Pediatric Thoracic Spine; and Pediatric Lumbar Spine.

Protocols Removed

The CTA for PE GSI protocol was removed from the Revolution Frontier / Revolution Frontier ES / Revolution Discovery CT / Revolution HD / Discovery CT / Discovery CT750 HD, Revolution CT, and Revolution CT ES platforms. We have, however, placed the recommended GSI Profile for a CTA for PE Chest protocol on our website resource page titled “PE GSI Profile”.

Global Changes Made to the UW Protocols

Some protocols were re-numbered and the order of the sections and the protocols within each section were revised to be more consistent with where the protocols are located on the scanner.

TrueFidelity (DLIR) was adjusted on many of the protocols on the Revolution CT 256 platform. We advise setting DLIR to LOW for Body protocols; to MEDIUM for Chest, Pediatric Chest, Pediatric Body, and Adult Cardiovascular protocols, and Neuro recons 2.5mm or thicker; and to HIGH for Pediatric Cardiovascular protocols and Neuro recons thinner than 2.5 mm.

A DLIR Limitation Statement has been inserted under acquisition parameters to all scanners explaining instances where the parameters in the scanner may differ from the tables.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm, (i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR-enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners, the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

A 16 and 32 Slice Scanner exception statement was inserted under acquisition parameters on all scanners explaining instances where the parameters in the scanner may differ from the tables.

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625 mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10 mm and/or 20 mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.2 5mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

The CT Perfusion Appendix page has been optimized to provide guidance on what type of CT Perfusion is needed for your specific scanner, indication, and patient size. All Cine Perfusions have been removed from the protocols. You should never use "CINE" mode for perfusion scanning. CINE mode does not allow for gaps between acquisitions. This means the beam is always on, which is not needed for perfusion. Perfusion protocols have been provided that utilize Shuttle Mode when available, and Axial mode when Shuttle is not available or when less coverage is required. When using the Axial mode perfusion settings, please be sure the interval is "0". While parameters have been set in the CTA Stroke Total Cerebrovascular protocols and CTA Head only protocols, keep in mind there are multiple options depending on specific scanner, scanner options, and coverage you desire. Please consult the perfusion section of this manual for more details.

Guidance is included on how to combine a Routine CT Chest and/or CT Chest/Abd/Pelvis with a CT Neck. These instructions apply to both adults and pediatric patients. They include order of operations, contrast volumes, and shorter scan delays for the CT Neck due to lower contrast volume. These instructions are located in your Table of Contents in the Body and Pediatric sections. There are no protocol numbers listed as you use the respective acquisition parameters for a Chest, or Chest/Abd/Pel and Neck.

The Metal Artifact Reduction Software (MARS) Guidance page has been updated. Both "with metal" and "without metal" protocols are provided for MSK. The "with metal" protocols use a higher dose. We provide guidance for using metal artifact reduction on both versions. In the presence of metal, we find using MARS with the "without metal" protocols sufficient. However, if the image quality is still not to your liking, we suggest that you try the higher dose "with metal" protocol and enable MARS for the standard recon only.

Several other instructional pages have been updated as well. This includes DMPR Set-Up Instructions, Restore Manual (how to load our protocols onto the scanner), Scout Ranges and Anatomical Reference Guide, and Pediatric MSK Extremity Guidance.

The DMPR reformats for "SA BODY" and "CO BODY" have been updated to 350/50 ww/wl. The CV protocols previously used the “CO BODY” and “SA BODY” DMPRs. You will need to create new DMPRs for the CV protocols – “CO CV” and “SA CV” using 450/50 ww/wl. Please reference the DMPR Set-Up Instructions for guidance. The protocols affected are: Adult Non-Gated CTA (Chest/Abd/Pelvis), Adult Gated Chest and Non-Gated Abd/Pelvis CTA, Pediatric Gated Chest and Non-Gated Abd/Pelvis CTA, and Pediatric Non-Gated CTA (Chest/Abd/Pelvis).

In Revision 4, adult scout ranges were standardized. In this version, we have again standardized pediatric scout ranges. The scout ranges now increase with the pediatric size bin.

Smart Prep reference images are now included in the Scan Description section of all protocols that require a Smart Prep for contrast injection. These Smart Prep images demonstrate to the technologist a scout image and a cross sectional image referencing the anatomy to be visualized for the Smart Prep Location.

Abdominal Protocols

All window width and window level (WW/WL) for routine adult body protocols were changed from 450/50 to 350/50. This change increases the apparent (i.e., displayed) contrast of the images. Our body radiologists found that with the WW/WL of 450/50, the images appeared to be “washed out”. With this change, the reformats for "SA BODY" and "CO BODY" were also updated to 350/50. Please remember to update your manual and DMPR reformats.

We have enabled series split on all multi-phasic protocols on the Non-Revolution CT 256 (i.e., all non-wide axial) scanners (e.g., Biphasic Liver, Triphasic Liver, Pancreas Cancer, Hepatocellular Carcinoma Liver, and Trauma Chest/Abd/Pelvis), This allows one to send each phase/group of a single series to PACS separately. There is a special workaround to implement a series split which applies to the Revolution CT 256 protocol set. For multi-phasic scans that use a single series and multiple groups, a "dummy" recon 1 was created, which is present on the scanner but not meant to be sent to PACS.

We have included guidance on how to combine a Routine CT Chest and/or CT Chest/Abd/Pelvis with a CT Neck. These instructions apply to both adults and pediatric patients. They include order of operations, contrast volumes and shorter scan delays for the CT Neck due to lower contrast volume. These instructions are located in your Table of Contents in the Abdominal section. There are no protocol numbers listed as you use the respective acquisition parameters for a Chest, or Chest/Abd/Pel and Neck.

The previously titled Low-Dose Renal Stone (including limited follow-up) protocol has been renamed to Limited Follow-up Kidneys Only. Instead of the previous three options for flank pain scanning, we now only have two options. This hopefully eliminates any confusion with dose/coverage.

The Pre-IVC Filter Removal protocol has been re-named CT Venogram, and the prep delay was adjusted from 180 seconds down to 120 seconds.

Small Bowel Enterography exams have been changed from a set 150 mL contrast injection volume to our P3T weight-based contrast injection protocol. We are still using a neutral (negative) oral contrast, but the brand we reference in the protocols has changed from Volumen to Breeza.

A guideline has been created to help physicians decide between ordering the Urography protocol or the Urothelial Tumor Follow-Up protocol in patients with hematuria and no known history of Transitional Cell Carcinoma. In general patients less than age 45 with hematuria should use the Urography protocol and patients older than age 45 should use the Urothelial Tumor Follow-Up protocol. Regarding follow up of patients with known TCC, physicians can choose between these two protocols. Use the High Image Quality Cancer Follow-Up Abd/Pelvis protocol for patients with known metastatic disease or screening for metastatic disease (i.e., the patient history contains a reference to metastatic disease). Or use the Urothelial Tumor Follow-Up protocol for all others (i.e., the patient history contains reference to the need to assess for recurrence, evaluating urothelium, or the patient is at high risk for TCC).

The CTA Abd Mesenteric Ischemia protocol has been updated to slightly increase both the speed and dose for the Venous Phase to improve image quality.

The Cholangiocarcinoma protocol has been removed and incorporated into the clinical indication guide (available on our website). If your site finds the need for a Cholangiocarcinoma Protocol, we recommend scanning a High Image Quality Abd/Pel, followed by a delayed phase scanned at 12 minutes post contrast injection. Please use the routine abdomen/pelvis protocol (lower dose than a High Image Quality Abd/Pel) parameters as a "high" dose should not be necessary for the delayed phase.

Chest Protocols

CTPA for PE now utilizes the Direct Multi Planar Reformats (DMPRs) for their coronal and sagittal lung reformats. These have been set to auto batch to save time.

Cardiovascular (CV) Protocols

The Cardiovascular protocols have been updated to reflect a weight-based IV contrast model. You will see IV contrast injection tables with weight bins in each protocol to help determine how much contrast to inject for each specific patient size.

Both CTA Extremity protocols have been updated. The field of view on the Upper Extremity CTA increased to 30 cm to include aortic arch. The Lower Extremity CTA has two Smart Prep adjustments: enabling dynamic transition and increasing the diagnostic delay to 12 seconds to allow time for the contrast bolus to better opacify the lower extremities.

The Prospectively-Gated Left Atrial Appendage protocol has had some minor changes to allow for better image quality and timing of the delayed phase. The rotation time on the delayed phase was increased from 0.28 to 0.35 to provide a slight increase in dose. The prep delay between the arterial and delayed series was decreased from 1 minute down to 30 seconds to allow for better contrast opacification in the Left Atrial Appendage. The breathing instructions were turned “OFF” between the two scans and the technologist must manually breathe the patient. In other words, the instructions are “ON” for pre-arterial series and post-delay series, but the technologist must manually breathe post-arterial and pre-delay series. Images have been added to the protocol to illustrate what and where the Left Atrial Appendage is.

All Gated Chest protocols (both Prospective and Retrospective) have had the Padding Override and the Smart Arrhythmia features enabled. The Prospectively-Gated Coronary CTA (Large size protocol), for the Revolution CT 256 platform only, has been adjusted to account for the unique needs of bariatric patients. The Smart-Prep enhancement threshold was increased to 100 HU; the kV Assist was turned off and set at 140kVp; and DLIR was increased to HIGH.

During the validation of the Prospectively-Gated Coronary CTA protocol on the Revolution CT 256 platform, we noticed some phases realized minimal motion during lower dose phases. These lower dose phases, for some patients, reduced diagnostic confidence in the images. We are in the process of altering the default GE gating CCTA profile to increase the tube current for “off phase” reconstructions. This should allow for better image quality at any phase where there is data available. You will see this change in version 7 of the UW protocol release.

The Pediatric Gated Chest and Non-Gated Abd/Pelvis CTA, and Pediatric Non-Gated CTA (Chest/Abd/Pelvis) protocols have had DMPR enabled to auto batch the CO CV and SA CV. Also, for the Pediatric Non-Gated CTA (Chest/Abd/Pelvis) protocol, instructions on a CTA Abd/Pel were included for instances when the Chest is not ordered.

Lung recons for all Pediatric CV protocols are set to Smart phase (previously Center Phase).

Musculoskeletal (MSK) Protocols

We have determined that MARS is best utilized with the Standard algorithm and have turned MARS off on Bone recons. "With Metal" and "Without Metal" protocols have been included for all scanners (even scanners with MARS capability) and guidance has been provided on when to use MARS. Guidance for scanning Pediatric Extremities has been updated and included in each MSK Extremity protocol. Located just above the clinical indication field, you will be see “Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction”.

Neuroradiology (Neuro) Protocols

The Neuro protocols have been updated to reflect our weight-based IV contrast model. You will see IV contrast injection tables with weight bins in each protocol to help determine how much contrast to inject for each specific patient size.

Many of Neuro protocols were renumbered, which places them in a new location on the scanner and in the Table of Contents.

For the Revolution CT 256 platform only, the Enhanced Contrast 2 (EC2) filter has been enabled for all Neuro protocol. The Ultra Recon has also been enabled on the Facial Trauma, Sinuses, and Temporal Bone protocols (22 FOV recons).

The Temporal Bone protocol now contains only one series. If the need arises to scan a Temporal Bone without AND with IV contrast, simply repeat series and scan at the recommended prep delay (Adults: 60 seconds; Peds: 45 seconds).

The window width and window level (WW/WL) for the Sinus exams were changed from 450/50 to 400/30.

The CT Venography Head & Neck protocol now has a set diagnostic delay of 7 seconds.

The Cervical, Thoracic, and Lumbar Spines (Adult and Pediatric) have been set to 16 FOV for uniformity. The technologist can adjust this as needed to include all anatomy. For scanners with MARS, the MARS feature has been turned off for all Bone recons on Neck and Spine protocols, and only remains on the Standard recons.

We have included guidance on how to combine a Routine CT Chest and/or CT Chest/Abd/Pelvis with a CT Neck. These instructions apply to both adults and pediatric patients. They include order of operations, contrast volumes and shorter scan delays for the CT Neck due to lower contrast volume. These instructions are located in your Table of Contents in the Body section. There are no protocol numbers listed as you use the respective acquisition parameters for a Chest, or Chest/Abd/Pel and Neck.

Pediatric Neuro protocols have been split into three (3) age groups--Infant: 0-2 years, Child: 3-6 years, and Adolescent: 7-17 years. The Scan FOV for the Blue/ Orange (38-43 cm) size was increased from Small body to Medium or Large body (depending on scanner capability).

Protocols for Pediatric Temporal Bone, Facial Trauma, Sinuses, and Orbit have all changed to a set prep delay rather than a Smart Prep.

Pediatric Protocols

For the Revolution CT 256 platform only, Routine Pediatric Chest, Chest/Abd/Pelvis, and Abd/Pelvis protocols are being offered with kV Assist 2.0 (i.e., Auto Prescription). This feature allows for Pediatric patients of any size (Newborn to 18 years old) to be scanned under these protocols. Within the Auto Prescription feature are three (3) different “size profiles” that the scanner automatically selects based on patient measurements. Though these protocols are technically “One-Size Fits All”, they have been placed in their respective location via protocol number and patient size/color grouping to avoid any confusion.

For the Revolution CT 256 platform only, the diagnostic delay on the Pediatric Chest/Abd/Pelvis protocol was increased from 20 seconds to 27 seconds because the scan duration on the Revolution CT 256 platform is so much faster relative to other scanners we provide this protocol for.

All our Pediatric protocols have been updated to scan faster. This is ideal in the pediatric patient population to decrease motion as most young patients are unable to hold still for long periods of time or follow breathing instructions.

UW Protocol Resource Ecosystem

In addition to the protocols contained in this booklet, we've cultivated a website with additional resources. These resources augment the protocols contained here to assist your practice in all facets of CT scanning. As shown in the graphic below, we have included resources for the following:

https://uwgect.wiscweb.wisc.edu/resources/

- Mapping indications to protocols quick guide
  - We include a manual which is meant to be a quick reference guide for mapping diagnosis and indications to our protocols. We offer various protocols which are required to properly span patient size and the wide range of indications most radiology practices service.

- Accreditation requirements
  - By using the UW protocols you are compliant with a number of Joint Commission Diagnostic Imaging Performance Criteria. Please see the letter on the website which itemizes this.

- Series Description and Hanging Protocols Uniformity
  - We have a vendor neutral manual which details homogeneous name reconstructions and assist tech workflow with image hanging in PACS.

- Quality Assurance
  - We include detailed instructions on Daily, Weekly and Monthly QA testing and analyzing for CT Scanners. These include phantom scanning instructions, data collection worksheets, and step by step instructions on how to scan and gather measurement data for ACR and TJC compliance.

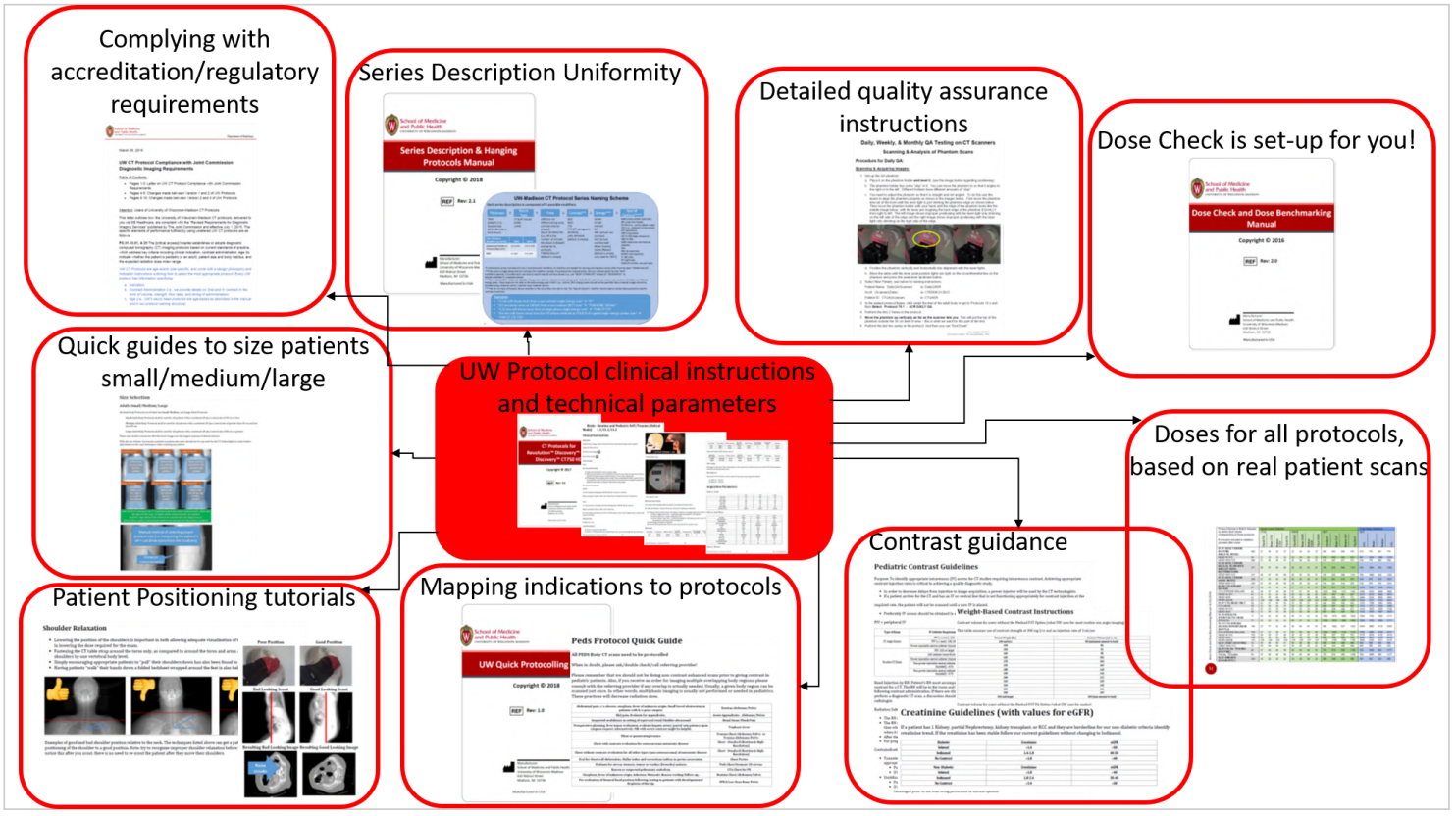
- Dose Check and Dose Benchmarking
  - We provide dose check values tuned to patient size and indication with instructions on how to enter them on your scanner (all UW protocol discs will come with these already pre-loaded for you).
  - We also incorporate dose data from thousands of UW patients scanned using these protocols, providing appropriate standard references.

- Contrast guidance
  - We provide reference material for daily tech use on: needle gauges, creatinine/eGFR levels, weight based dosing, contrast media, and oral contrast mixtures.

- Patient Positioning
  - In proper patient positioning can lead to poor image quality. We have a tutorial document that goes over proper positioning to avoid degradation in spatial resolution and amplifications of image noise.

- Patient Size Selection
  - Many techs at first have trouble with our use of small/medium/large sized based scans. We created a manual and defined our default reconstruction FOV to mitigate any issues.

https://uwgect.wiscweb.wisc.edu/resources/



We hope the collection of scanner protocols contained in this booklet, and the plethora of resources on our website, can aide you in your effort to provide the best patient care possible!

Compatibility Revolution CT ES (without DLIR Purchasable Option)

Introduction:

Listed below are the minimum scanner options required to use this set of protocols on your Revolution CT ES (without DLIR Purchasable Option) scanner. The protocols in this document have been validated on a scanner compatible with the requirements listed below. The portability of UW protocols to scanners with different specifications may be possible with the proper assistance from your institution's CT protocol optimization team, but should no longer be considered validated UW protocols.

As with any protocol "restore" operation, the existing "user" protocols will be deleted when these UW protocols are loaded onto your scanner. We therefore recommend you save and export a copy of your existing protocols to a CD prior to loading the UW protocols. The exported file can be used as a reference to aid in manually adding a single protocol to the UW protocol set under your "user" tab.

Protocols can be exported to CD from the Tool Chest or from Dose Check. The CD can then be viewed on a PC and converted to Excel format.

IMPORTANT—The following two rules should always be followed when restoring protocols: 1) protocols must only be transferred between scanners of the same model, and 2) protocols must only be transferred from another scanner with a software version that is older or equal in revision number, but not newer.

These protocols were built using software version number 20MW06.41.R160_PHI_R256_G. You should contact your service engineer to receive a software upgrade if your current software version is older than this.

Scanner Compatibility List:

128 slices acquisition at 0.625 mm (80 mm collimation)

ASiR-V

GSI Options:GSI Xtream

Other Options: HyperDrive, Revolution CT Recon Server Xtream, Xtream Stroke, Smart MAR

Tube rotation times (helical mode, non-cardiac): 0.28, 0.35, 0.5, 0.6, 0.7, 0.8, 0.9, and 1.0 second

mA limits for each kV: 530 mA at 140 kV, 620 mA at 120 kV, 720 mA at 100 kV, 600 mA at 80 kV, 500 mA at 70 kV

Direct Multi-Planar Reformat (DMPR) Protocols

Introduction:

A Direct Multi-Planar Reformat (DMPR) is a process set up and is executed as part of the scan protocol. It can use the same protocol that might be used in a General Reformat. In DMPR, the user defines the reformat protocols to be executed and sets as an Automated Batch mode or a Manual Batch mode. It is then executed on the ExamRx desktop.

Reformat is available on the Image Works Desktop and requires manual loading of the data once the scan is completed.

DMPR Protocols:

A reformat protocol must be created to be selected for use in protocols with DMPR enabled. For DMPR to work with the UW protocols, reformat protocols will need to be built with the same names as those used in the protocols. To build reformat protocols, you need to select images from an exam already performed to create the initial same-name reformat protocol. Reformat protocols created for use in DMPR must be single-step protocols and can only be created in the axial, sagittal, or coronal viewports. Reformat protocols for use in DMPR need to be saved in the General category if using Volume Viewer. You must create the DMPR reformat protocol on images from the body part that the protocol will be used for (i.e., a Pediatric DMPR protocol must be created on images for a Pediatric case and an Adult DMPR protocol must be created on images for an adult case).

UW-specific DMPR reformat protocol names are identified below with window width and level values for use with UW Protocols:

BODY (use Thin ST) WW/WL 350/50 CO BODY SA BODY 3 X 2	CHEST (use Thin Lung) WW/WL 1500/-700 CO SA 2.5 X 1.25	CARDIOVASCULAR (use Thin ST) WW/WL 450/50 CO CV SA CV 3 X 2
PEDS BODY (use Thin ST) WW/WL 450/50 CO PEDS SA PEDS 4 X 2	PEDS CHEST (use Thin ST) WW/WL 450/50 CO PEDS CHEST SA PEDS CHEST 4 X 2	PEDS CHEST(use Thin Lung) WW/WL 1500/-700 PEDS CO CHEST PEDS SA CHEST 4 X 2

All slice thickness and intervals can be found in the actual protocols.

Manual Reformats (non DMPR, these are for populating the drop down menu in the image works utility):

Optional pre-built reformats: These need to be built manually under Image works; reformat; batch and then protocol drop down menu. (follow the instruction below)

Label	Slice Thickness (mm)	Spacing/Interval (mm)	WW	WL
Head	3	1.5	180	25
MIPS PE	10	5	920	125
MIPS 2x1	2	1	800	200
MIPS 10x2	10	2.5	600	200
CO ST 3X2	3	2	350	50
CO BONE 3x1	3	1.5	2500	350
CO ST 2x1	3	2	450	50
CO BONE 2x1	2	1	2500	350

How to Create a Reformat Protocol for use in a DMPR or manual sessions:

1. Load thin slices (make your reformat 0.625/1.25) into Reformat selected on the Image Works desktop. (You must pick a study that has a wide display field of view and a long scan range, i.e. a run off works well for building these.)
2. Select Batch Reformat.
3. Set the direction (CO/SA) of the batch, slice thickness, interval, FOV, WW/WL and mode to the values for the protocol it will be used with.
4. Define the overage (number of images) for the reformat protocol according to the anatomical area for the protocol.
5. At the bottom of the Batch screen, click ADVANCED.
6. Click SAVE AS PROTOCOL.
7. Enter the Protocol Name* and click OVERWRITE.

*The exact name listed above must be used in the naming of the protocol so DMPR will use the appropriate reformat protocol, which has been predefined in each of the protocols that use DMPR. Once you create these reformat protocols, you will not need to do it again.

Should you decide not to use these suggested reformat protocol names, slice thicknesses, or intervals, you will need to create your own reformat protocols and modify all protocols using DMPR with your selections; otherwise, DMPR will fail to output reformatted series.

To apply Auto DMPR on select recons, click the Auto Apps button. All of your Pre-Set Reformats will then show up in your Batch Protocol List. Click Start New, select the reformats you need for that recon, and click Auto Batch "ON".

Size Selection

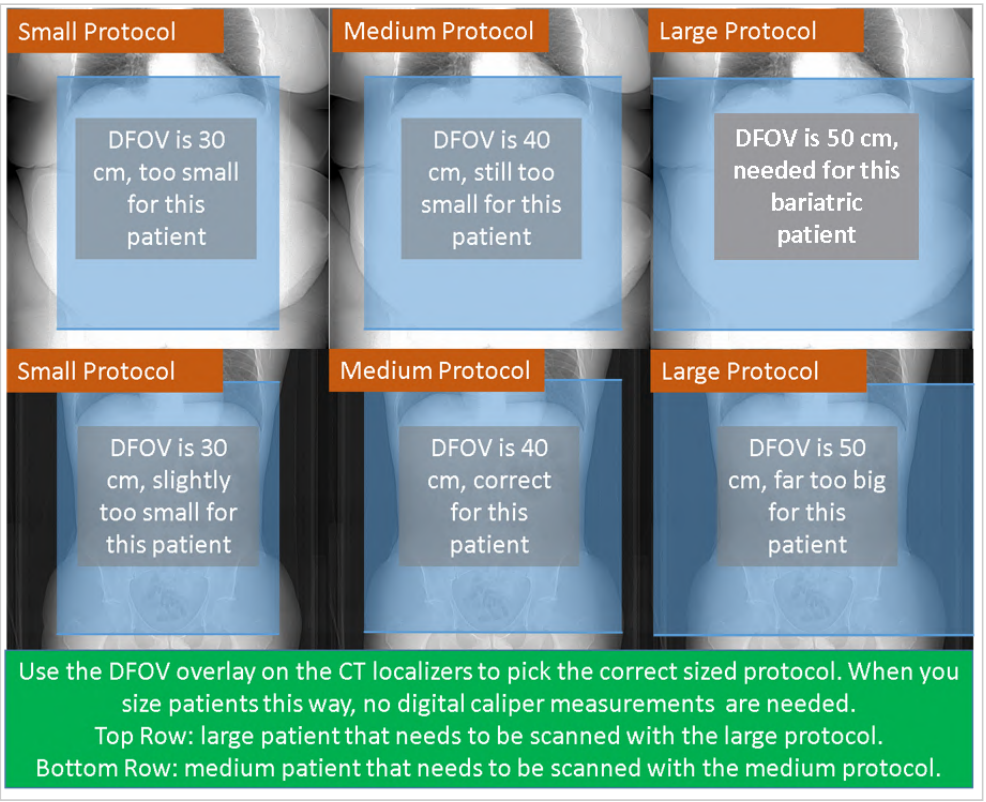
Adults:Small/Medium/Large

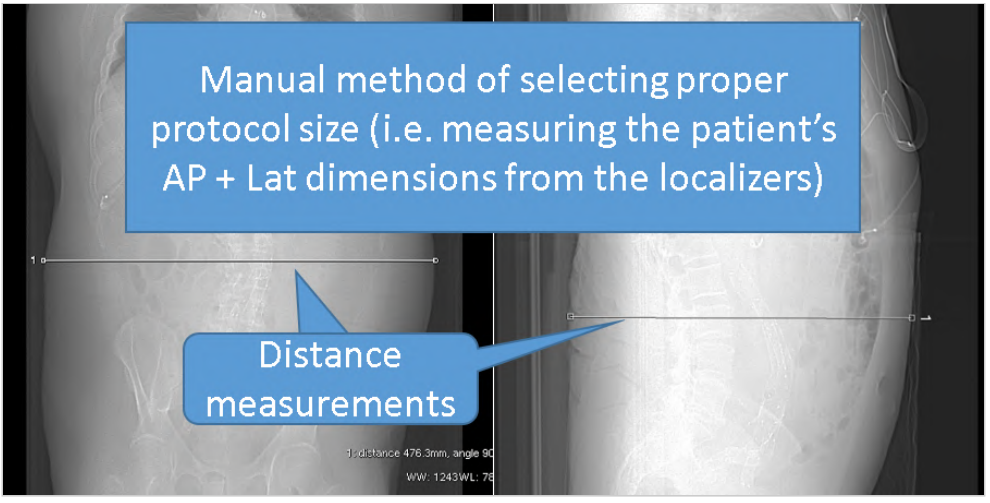
All Adult Body Protocols are divided into **Small**, **Medium**, and **Large** Adult Protocols.

> **Small** Adult Body Protocols shall be used for all patients with a combined AP plus Lateral size of 60 cm or less.
>
> **Medium** Adult Body Protocols shall be used for all patients with a combined AP plus Lateral size of greater than 60 cm and less than 80 cm.
>
> **Large** Adult Body Protocols shall be used for all patients with a combined AP plus Lateral size of 80 cm or greater.

These sizes shall be measured off of the Scout image over the largest anatomy of clinical interest.

With the use of these 3 protocols, matched to patient size, there should not be any need for the CT technologist to make further adjustments to the scan techniques when scanning any patient.





Pediatrics: Color Code

When selecting the patient size protocol to use, the combined AP plus Lateral Size of the patient is the primary determining factor. This sum of the AP plus Lateral dimensions of the patient should be measured off of the scout image over the largest anatomy of clinical interest. For accurate measurement, the patient must be properly centered. Also the window width must be adjusted wide enough so that the measurements can be taken from the surface of the skin. For patients with a combined AP plus Lateral Size above 60 cm, use a Medium Adult protocol. Between 55 and 60 cm, use a small adult protocol.

The pediatric color coding scheme divides pediatric into five sizes coded by color. The approximate age of patients and size ranges are given as follows:

Pink Newborns. Typical AP + Lateral size of 0-26 cm.

Red/Purple 6 months-2.5 years. Typical AP + Lateral size of 27-31 cm.

Yellow/White 3-7 years. Typical AP + Lateral size of 32-37 cm.

Blue/Orange 8-12 years. Typical AP + Lateral size of 38-43 cm.

Green/Black 13-18 years. Typical AP + Lateral size of 44-60 cm.

The 9 colors that are used in this scheme are derived from the Broselow tape scale which was originally used to color code doses of medication given in pediatric care.

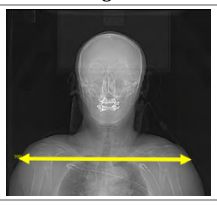
Neuro: Adult & Adolescent/Child/Infant

Some of the Neuro protocols have scan parameters that are divided into 3 groups for: Adult & Adolescent (7-17 years old), Child (3-6 years old), and Infants (0-2 years old).

Size Selection for Neck and C-Spine

NOTE - if the patient has lymphoma and the study is a follow-up, use the small neck protocol (regardless of the patients actual size) since it will provide a lower dose

- Verify that the arms are outside of the CT wrap, and that the shoulders are relaxed down toward the feet as far as possible. Measure the width of the shoulders through the level of the mid-humeral head, as shown below.
- Check BMI
- Select small, medium and large based on the table below.

Measure width through mid-humeral heads	Small	Medium	Large
	**Shoulder width less than 46 cm *OR* BMI less than 26**	**Shoulder Width 46 to 50 cm**	**Shoulder width greater than 50 cm *OR* BMI greater than 35**

Trauma Chest and CAP T-Spine Workflow

New Workflow

- You get an order for Trauma Chest only --> you scan the patient using the Trauma Chest protocol
- You get an order for Trauma CAP only --> you scan the patient using the Trauma CAP protocol
- You get an order for a Trauma Chest and T-spine--> You scan the patient with the Trauma chest protocol **AND THEN YOU MUST PERFORM A SEPARATE SCAN USING THE** T-Spine protocol
- You get an order for a Trauma CAP and a T-spine--> You scan the patient with the Trauma CAP protocol (and possible delays) **AND THEN YOU MUST PERFORM A SEPARATE SCAN USING THE** T-Spine protocol

Note: you wont be able to do a retro recon of the T-Spine from the Trauma Chest or Trauma CAP protocol anymore. So make sure the Trauma physician knows if they decide they want T-Spine images at a later time, the patient will have to be re-scanned.

Note: The abdomen portion of the Trauma CAP is still delivered at a spine level dose. In other words, you don't have to perform a separate L-Spine scan if you get an order for Trauma CAP and L-Spine. So if you get an order for a Trauma CAP and T-Spine and L-Spine, you need to scan using just the Trauma CAP and T-Spine protocols.

Note: The pediatric Trauma CAP protocol can still be used to retro recon the T Spine. In other words, you should NEVER scan both a Trauma pediatric CAP and then a T Spine protocol.

Old workflow

All T-spines could be reconstructed from a Trauma Chest or Trauma CAP scan. Therefore, you only had to scan the patient with the Trauma Chest or Trauma CAP protocol.

History of Workflow

Previous versions of UW Protocols scanned Trauma Chest and CAP at a dose level sufficient for T-Spine reconstruction. This allowed a single scan to fulfill orders for both a Trauma Chest and T-Spine. In order to deliver enough dose and minimal artifact for the spines, our technique used a 0.516:1 pitch and relatively long rotation times. This produced good spine images, but the scan times were too long which caused undesired motion on the Trauma chest images.

CT Perfusion Protocol: (Specific Instructions)

Acquisition Parameters

Scan modes for perfusion will vary based on scanner model, scanner options, and perfusion scan range.

What mode to use?

- Is your scanner a Revolution CT, Revolution CT ES, or a Revolution Apex?
  - If yes, use the table labeled "Revolution 256" below which uses a 80 mm collimation and an axial scan mode
    - This scanner doesn't require you to change modes in order to use larger (e.g., 120, 140, or 160 mm) or smaller (e.g., 40 mm) perfusion scan range.
- Does your scanner have shuttle mode?
  - If yes, use a protocol from the section labeled "Shuttle mode capable scanners" which uses an 80 mm shuttle scan range
  - This mode doesn't allow for coverages smaller than 80 mm. If you desire a smaller coverage (e.g., on a pediatric patient) you need to use the instructions below for axial mode. While this mode allows for more than 80 mm of coverage (i.e., the shuttle mode allows up to 120 mm), we recommend 80 mm.
- Does your scanner not have shuttle mode and it is not a Revolution CT, Revolution CT ES, or a Revolution Apex?
  - If yes, use the a protocol from the section labeled "Axial mode perfusion protocols" where we provide parameters for 20 or 40 mm axial mode coverage

You should never use "CINE" mode for perfusion scanning. CINE mode does not allow for gaps between acquisitions. This means the beam is always on, which is not needed for perfusion. Each table below has parameters for both pediatrics (0-6 years old) and adults. Adolescents ages 7-17 should use the adult parameters. Apply 30% ASiR/ASiR-V to the perfusion recons if your scanner has that option. **The CTDIvol ranges for the protocols listed here varies between ~200 and ~400 mGy depending on scanner. If you program one of these protocols into your scanner and it provides a CTDIvol over 600 mGy something is wrong.** You should consult GE apps or contact our UW team if this occurs. We use a slightly higher mA for wide bore scanners to account for the larger bore size.

Important: Brain Perfusion scan durations should last for approximately 65 to 70 seconds and have at least 22 passes. In order to achieve this in Axial mode you will adjust several parameters: rotation time, interscan delay, and the number of images. We have included a row for "total number of images" in our Axial Perfusion Mode Parameter Tables. While we understand that "number of images" is not typically a parameter set by technologists, it is an indirect way to get the scanner to scan a specific number of passes. Do not expect to see a box on the scanner telling you your total perfusion scan time for the "Axial mode perfusion protocols". Your total perfusion scan duration for Axial Mode perfusion scanning will be equal to (22 passes at 0.5 seconds) + (22 passes at 2.5 sec ISD) = 66 seconds.

For scanners with limited coverage (i.e., less than 80 mm) you may want to consider preforming multiple perfusion scans with separate contrast injections. Consult a physician at your institution to build such a protocol.

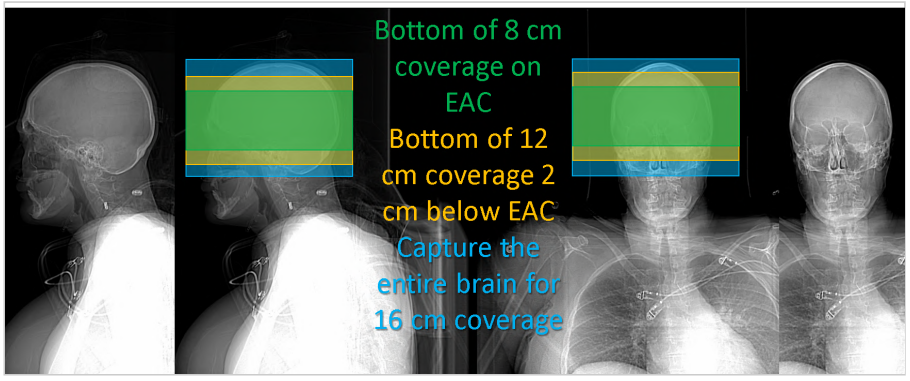
One of the most common errors made in setting up these protocols is entering a non-zero interval for an axial mode perfusion scan. If you do this, the scanner WILL NOT scan the same coverage. A protocol set with a non-zero interval in axial mode will index the couch/table between each perfusion pass --> we do not want this. So please be sure the interval is "0" for axial mode scans. For shuttle mode scans, the interval value will be set by the scanner based on the scan range selection (e.g., for an 80 mm shuttle perfusion the interval is 40 mm).

For pediatrics, UW protocols ship with a default scan range of 40 mm. Therefore, even if the scanner has shuttle mode, for pediatrics we use axial mode in order to obtain a 40 mm collimation. If you require a larger collimation for your pediatric patients, you will have to change to shuttle mode if your scanner has that option. If your scanner doesn't have shuttle mode and you require a collimation larger than 40 mm, you will have to perform two contrast bolus injections and you should consult a physician to discuss.

	Revolution256	Shuttle mode capable scanners (wide bore)	Shuttle mode capable scanners (regular bore)	Axial mode perfusion protocols (wide bore)	Axial mode perfusion protocols (regular bore)
Scan Type	**Axial**	**Shuttle**	**Shuttle**	**Axial**	**Axial**
Rotation Time	**0.35**	**0.5**	**0.5**	**0.5**	**0.5**
Beam Collimation (mm)	**80**	**40**	**40**	**as large as possible**	**as large as possible**
Detector Rows	**128**	**64**	**64**	**as large as possible**	**as large as possible**
Detector Configuration	**128 x 0.625**	**64 x 0.625**	**64 x 0.625**	**as large as possible**	**as large as possible**
Scan FOV	**Head**	**Head**	**Head**	**Head**	**Head**
Number of images per rotation	**16i**	**8i**	**8i**	**(8i for 40 mm, 4i for 20 mm)**	**(8i for 40 mm, 4i for 20 mm)**
kV	**80**	**80**	**80**	**80**	**80**
Smart or Manual mA	**Manual mA**	**Manual mA**	**Manual mA**	**Manual mA**	**Manual mA**
Manual mA for Adults	**500**	**360**	**300**	**360**	**300**
Manual mA for Ped	**285**	**180**	**150**	**180**	**150**
Duration (sec)	**65**	**65**	**65**	**~65**	**~65**
# of Passes	**22**	**22**	**22**	**22**	**22**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
Interval (mm)	**0**	**Determined by scan range**	**Determined by scan range**	**0**	**0**
Total Number of images	You don't need to set this, it is chosen for you when you set up the perfusion protocol.	You don't need to set this, it is chosen for you when you set up the perfusion protocol.	You don't need to set this, it is chosen for you when you set up the perfusion protocol.	This needs to be equal to 22x(beam collimation/5). So for a 20 mm scanner, it will be 88 images. For a 40 mm scanner, it will be 176.	This needs to be equal to 22x(beam collimation/5). So for a 20 mm scanner, it will be 88 images. For a 40 mm scanner, it will be 176.
ISD (interscan delay)	Adjust the field named "Minimum Time Between Passes" until scan time reaches ~65 seconds. For 0.35 second rotation time and 22 passes, this value will be 2.8 seconds.	Not used.	Not used.	2.5 seconds	2.5 seconds

CT Perfusion Coverage

256 (Revolution CT) slice coverage



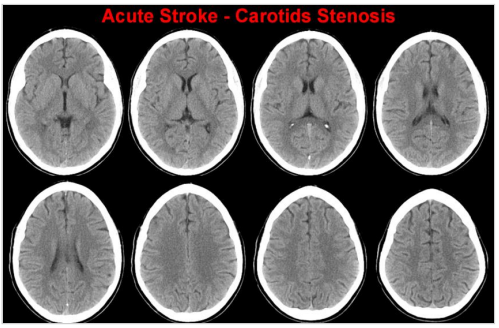
Perfusion Coverage Guidance. If a "whole brain" coverage is ordered, use the 16 cm coverage. Note, on non Rev256 scanners, you will only have 8 cm of coverage (i.e. shuttle mode). All three protocols will have the same scan time, approximately 60 seconds. 80 mm coverage = 352 images, 120 mm coverage = 528 images and 160 mm coverage = 704 images. Normal stroke workup, even on a 16 cm capable wide axial scanner should only use 80 mm coverage. The >80 mm coverage should be requested specifically by the ordering physician.

80 mm shuttle mode coverage

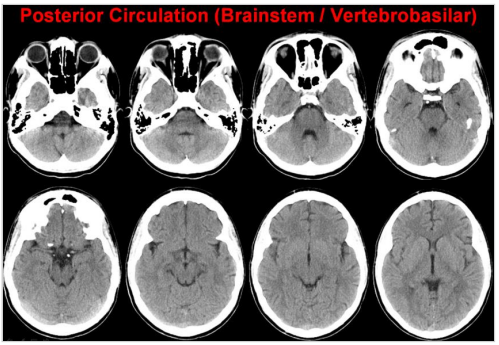
Obtain 16 contiguous 5 mm slices from EAC Upward

<80 mm coverages

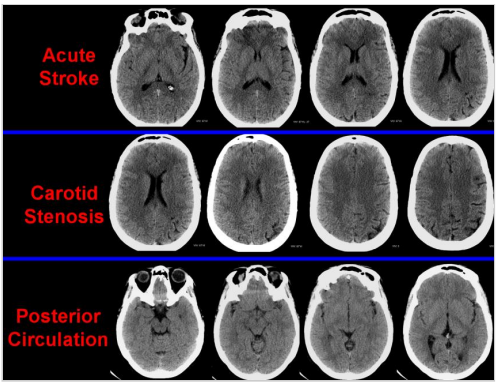
Coverages for <80 mm should be prescribed by the ordering physician. Ideally, you should not use a scanner providing less than 80 mm of coverage. We provide some example images below of commonly ordered scan ranges.



4 cm coverage for acute stroke carotid stenosis



4 cm coverage for posterior circulation brainstem/vertebrobasilar



2 cm coverage (see image for scan ranges based on presentation)

Chest/Abd/Pelvis with IV Contrast 5.4/5.5/5.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for adenopathy, abscess, and neoplasm.

Oral Contrast

Oral Contrast:

- Patient receives a total volume of 1000mL (1L) of oral contrast. Give a total of 4 doses (800 mL) plus a 2x concentrated (200 mL) dose on the CT scanner.
- 1 Dose = Mix 4mL of Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid, no ice, no carbonation.
- Give a total of 4 doses = 800mL (Outpatients: 1 dose every 15 minutes over one hour, Inpatients: 1 dose every 30 mins over two hours).
- Give an additional 2x concentrated dose on the CT scan table. Mix 8mL of Iohexol 300mg/ mL (Omnipaque) in 200mL of clear liquid.

Bariatric Post- Op (Gastric By-Pass) patients:

- These patients are only able to tolerate 150 mL. No need for extended drink duration. Oral contrast ONLY given on the CT scan table just prior to scanning.
- Mix 4mL Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid.
- Give 3/4 of 1 dose (150mL of 200mL) on the CT table.

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

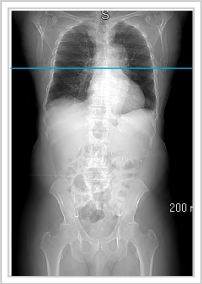
Same as previous study or as small as appropriate

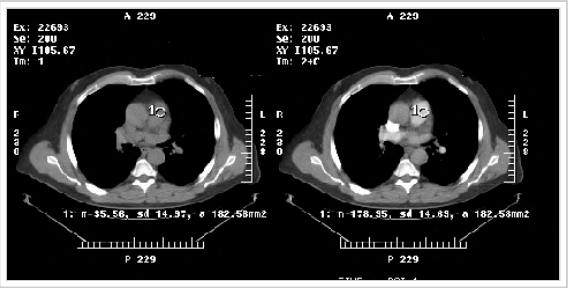
Scan Description

- Series 1 - PA and lateral scouts: from lower neck through iliac crest or pubic symphysis
- Series 2 – Helical Scan
  - Scan Phase: 2 groups each with separate inspiration breath hold.
    - 1st group - Chest: Start scan above lung apices (first rib) and scan through lung bases/costophrenic angles.
    - 2nd group - Abd/Pel: Scanned at 70 seconds from the start of the injection. Adjust Prep Delay to achieve this. Start scan just above the diaphragm, end just below pubic symphysis. If no pelvis is

ordered/ indicated, end scan at iliac crests.

- Smart Prep- Monitor Phase: Center over pulmonary artery, threshold 100 HU. No greater than a 50 second delay.





Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual		Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN LUNG	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	sagittal
CO	THIN LUNG	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	coronal
Axial MIP	THIN ST	Manual		MIP	1500/-700	10	5	AX MIPS
SA CV	THIN ST	DMPR (Abd/Pelvis)		Average	350/50	3	2	sagittal
CO CV	THIN ST	DMPR (Abd/Pelvis)		Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

For Chest/Abd/Pelvis SPLIT CASES please refer to the Chest Protocol and the A/P protocol for Reformats

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**15**	**15**	**15**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**100**	**100**	**100**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-690)**	**(45-730)**	**(30-600)**
Manual mA	**430.0**	**360.0**	**350.0**
Noise Index	**12.0**	**14.0**	**18.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Chest/Abd/Pelvis without IV Contrast 5.7/5.8/5.9

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for adenopathy, abscess, and neoplasm.

Oral Contrast

Oral Contrast:

- Patient receives a total volume of 1000mL (1L) of oral contrast. Give a total of 4 doses (800 mL) plus a 2x concentrated (200 mL) dose on the CT scanner.
- 1 Dose = Mix 4mL of Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid, no ice, no carbonation.
- Give a total of 4 doses = 800mL (Outpatients: 1 dose every 15 minutes over one hour, Inpatients: 1 dose every 30 mins over two hours).
- Give an additional 2x concentrated dose on the CT scan table. Mix 8mL of Iohexol 300mg/ mL (Omnipaque) in 200mL of clear liquid.

Bariatric Post- Op (Gastric By-Pass) patients:

- These patients are only able to tolerate 150 mL. No need for extended drink duration. Oral contrast ONLY given on the CT scan table just prior to scanning.
- Mix 4mL Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid.
- Give 3/4 of 1 dose (150mL of 200mL) on the CT table.

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

None

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts: from lower neck through iliac crest (for chest/abdomen) or pubic symphysis (for CAP)
- Series 2 – 2 groups each with separate inspiration breath hold.
    - 1st group- Chest: Start scan above lung apices (first rib) and scan through lung bases/costophrenic angles.
    - 2nd group- Abd/Pel: Overlap 1st group 2 cm, and end scan just below pubic symphysis. If no pelvis is ordered/ indicated, end scan at iliac crests.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual		Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN LUNG	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	sagittal
CO	THIN LUNG	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	coronal
Axial MIP	THIN ST	Manual		MIP	1500/-700	10	5	AX MIPS
SA CV	THIN ST	DMPR (Abd/Pelvis)		Average	350/50	3	2	sagittal
CO CV	THIN ST	DMPR (Abd/Pelvis)		Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

For Chest/Abd/Pelvis SPLIT CASES please refer to the Chest Protocol and the A/P protocol for Reformats

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.992
Speed (mm/rot)	79.40	79.40	79.40
Rotation Time (s)	0.35	0.5	0.7
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(50-690)	(45-730)	(30-600)
Manual mA	430.0	360.0	350.0
Noise Index	12.0	14.0	18.0
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

CTA for PE with Abd/Pelvis 5.19/5.20/5.21

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Combination Protocol

CTA PE Chest

Evaluate for known or suspected pulmonary embolism.

Video for this protocol

Routine Abdomen Pelvis

Evaluate for abdominal pathology other than hypervascular tumors.

Video for this protocol

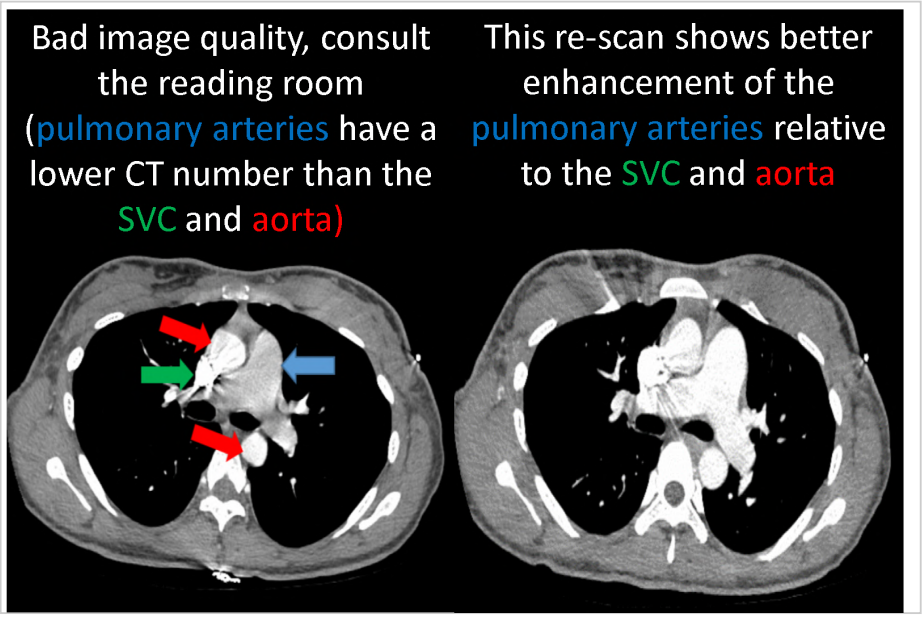
Oral Contrast

None

Pre-Scan Instructions

Practice the 3 breaths for scouts, smart prep, and the actual helical scan, we do not want to induce a transient interruption of contrast (TIC) which would can mimic a PE and or produce an indeterminate exam. Please give the patient these EXACT instructions: **"When you take your last breath before the exam, take a full breath but gently hold. Do not bear down, tense up, or strenuously hold your breath. This exam will be over in about 4 seconds from when we tell you hold your breath to when you may breath again.**

We would like to visualize contrast in the pulmonary arteries and aorta because this is a double rule out protocol. If you see the contrast in the pulmonary arteries at a much lower intensity than the SVC and aorta, the patient likely had a TIC which kept the PA from enhancing correctly. This is not a scan timing issue, but an issue with un-opacified blood entering the heart faster from the IVC than opacified blood from the SVC caused by a pressure imbalance between the thorax and abdomen. This is why the breathing instructions we provide above are critical for this exam. As a guidance tool, a good PE exam will have an enhancement threshold of 300 HU.



If your exam looks like the one shown here on the left, please call the reading room and have them review the images before letting the patient leave the CT suite.

Ventilated patients will be scanned on inspiration to ensure safety of RT Staff.

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

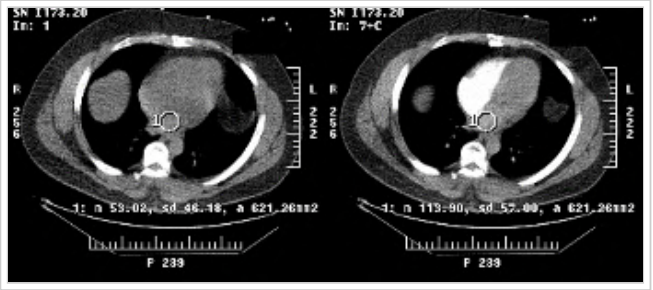
Weight Ranges	Contrast Dosage	Injection Rate
<250 lbs. (<113 kg)	Use P3T, Iohexol 300 mgI/mL DO NOT USE LESS THAN 100 mLs	5 mL/sec
250-300 lbs. (113-140 kg)	150 mL Iohexol 300 mgI/mL + 10 mL NaCl flush	5 mL/sec
300-350 lbs. (140-160 kg)	125 mL Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	5 mL/sec
>350 lbs (>160 kg)	150 mL Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	5 mL/sec
18 G Antecubital IV Started in the Right Arm		

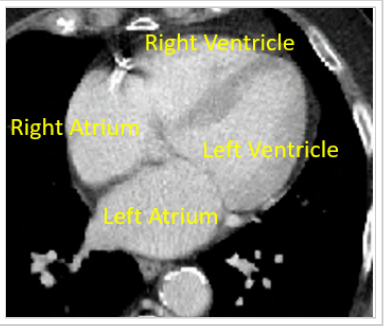
Field of View

Smallest possible to include all of chest including axillae and breasts.

Scan Description

- Series 1 - PA and lateral scouts: from lower neck through iliac crest or pubic symphysis using the suspension breathing instructions
- Series 2
  - Group 1 CTA PE
    - Scan Phase: from lower neck to diaphragm with IV Contrast. Inspiratory breathing instructions are on, remind the patient not to bear down or strain.
  - Group 2 Abdomen Pelvis
    - Scan Delay - Set to scan 70 seconds after contrast injection
    - Scan Phase: Start scan at the top of the diaphragm, for Abdomen Only end at the iliac crests or for Abdomen/Pelvis end at pubic symphysis.
    - Smart Prep - Monitor Phase: Center on Lt atrium; Watch for atrial filling with contrast on the bolus tracking scan and then start using manual start, no delay is needed.





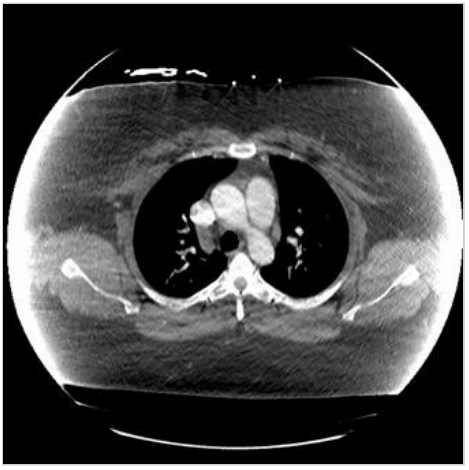
Adjustments for Bariatric PE and Cardiac Studies We do not have a bariatric protocol for chest PE or cardiac (retrospectively or prospectively gated coronaries) studies. Our large protocol is already designed to deliver a higher maximum dose than the medium and small adult protocols, but it uses 120 kV to maximize iodine contrast. Other large adult protocols that are not angiograms use 140 kV for large adults. Therefore, for bariatric patients who 1. **fill the scout view** or 2. **max out the mA table** please increase the kV from 120 kV to 140 kV.

Note: If you know the patient is likely to max out the mA table before taking the scout, you should increase the scout kV from 120 to 140.

Example of a patient **filling the scout view**

Example patient **filling the scout AP view**

Example patient **filling the scout lateral view**



resulting poor image quality from a patient who **fills the scout**

Reformat Instructions

No special reformat instructions, see the reformat section for basic details.

Reformats

For PE

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN LUNG	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	THIN LUNG	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.
MIPS	THIN ST	Manual	MIP	920/125	10	5	Axial

For Abdomen Pelvis

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

- Ventilated patients will be scanned on inspiration to allow respiratory therapists to be outside of the scan room during the scan.
- DO NOT USE VISIPAQUE UNLESS INSTRUCTED BY THE RADIOLOGIST

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	20
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	40
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Group 1, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	2.0	2.0	2.0
Monitoring ISD (sec)	1.0	1.0	1.0
Enhancement Threshold (HU)	60	60	60
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.6**	**0.5**	**0.8**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-520)**	**(40-680)**	**(35-610)**
Manual mA	**260.0**	**340.0**	**370.0**
Noise Index	**26.0**	**34.0**	**38.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Trauma - Chest 5.22/5.23/5.24

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Emergency evaluation for aortic injury or organ disruption. Routine creatinine cut-off for IV contrast administration does not apply in a trauma.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen

4 mL/sec Iohexol (Omnipaque) 300 mg/mL injection

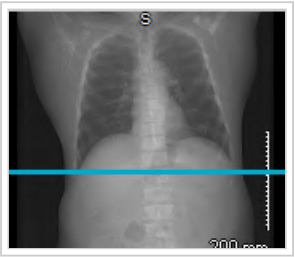
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

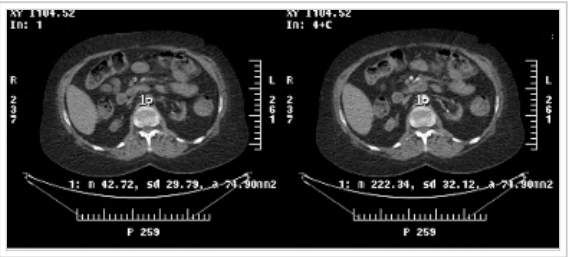
Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scout: from lower neck to mid-abdomen.
- Series 2 - Helical Scan- Scan Phase- With IV Contrast: Scanned bottom-up. Start scan mid L2 (*be sure to cover the spleen*) and end at the top of the lungs (apices). The scan should be performed at full inspiration. Intubated patients should have their breathing suspended by respiratory therapy, whenever possible
    - Smart Prep- Monitor Phase: Center over the liver. Put ROI in the aorta. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.**





Reformat Instructions

Perform a manual reformat for the axial MIP. The CO and SA reformats are set-up for DMPR.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
MIPS	THIN ST	Manual	MIP	1500/-700	10	5	axial
SA	THIN LUNG	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	THIN LUNG	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	15	15	15
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	100	100	100
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-690)**	**(45-730)**	**(30-600)**
Manual mA	**430.0**	**360.0**	**350.0**
Noise Index	**12.0**	**14.0**	**18.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Trauma - Chest/Abd/Pelvis 5.25/5.26/5.27

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Emergency evaluation for aortic injury or organ disruption. Routine creatinine cut-off for IV contrast administration does not apply in a trauma.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Patients with a Foley catheter must have it clamped prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

Medrad™ P3T Abdomen

4 mL/sec Iohexol (Omnipaque) 300 mg/mL injection

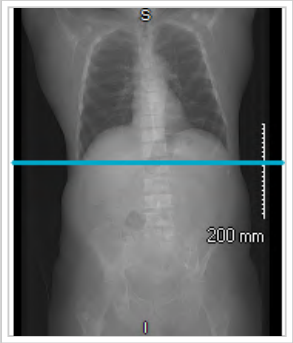
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

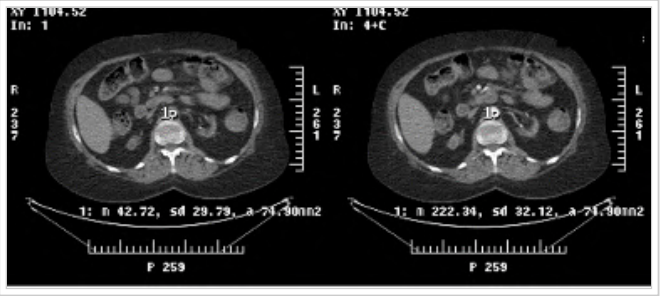
Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1**- PA & lateral scout: from mid-neck through iliac crests or pubic symphysis.
- **Series 2** – Helical Scan- Scan Phase: With IV Contrast scans – Performed in 2 groups: Chest (1st group) – Abdomen and Pelvis (2nd group)
  - 1st group: Scanned bottom-up. Start scan mid L2 (*be sure to cover the spleen*) and scan to the top of the lungs (apex)
  - 2nd group: Scanned at 70 seconds from the start of the injection. Adjust Prep Group delay to achieve this, for Abdomen/Pelvis end at pubic symphysis
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI in the aorta. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.**





- **Series 3** - Delayed Scan (Optional per MD)
  - 7 minute delayed scans from the top of the kidneys through the bladder base

Reformat Instructions

The axial MIPs of the chest are manual and the L-spines (if ordered) are manual. The rest of the reformats for the chest and abdomen/pelvis use DMPR.

Extra Recons on Trauma Protocols:

- In Trauma patients, we Retro Recon our L-spines from the Trauma Abd/Pel protocol. We no longer retro T spines off the Trauma Chest as mentioned in the revisions. If a T-Spine is ordered, you will need to perform a dedicated T-Spine scan.
- Trauma Abd/Pelvis or Trauma Chest/Abd/Pelvis recons occupy the first 2 and 3 recons respectively. The subsequent 3 recons are pre-set for L spine scan parameters. You can turn these on if you have an order to recon the spine for the patient.
  - Remember once you turn these recons on you must adjust the FOV, start and end location, R/L centering, and A/P centering.
  - Remember to turn off these additional recons if you have to add a group to the end of your scan (get through the pelvis), or it will add that small group to the end of your L-spine.

Use Exam Split or Anonymize exam to separate the Lumbar Spine from the Trauma C/A/P or Trauma A/P.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
MIPS	THIN ST	Manual	MIP	1500/-700	10	5	axial
SA	LUNG	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	LUNG	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.
SA BODY	Body THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	Body THIN ST	DMPR	Average	350/50	3	2	coronal

Reformats for the L-spine (remember, if a T-Spine is ordered you must scan a separate T-Spine since the Trauma Chest series of the Trauma CAP is not meant for spine reformats):

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	2500/350	2	1	Sagittal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**15**	**15**	**15**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**100**	**100**	**100**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-690)**	**(45-730)**	**(30-600)**
Manual mA	**430.0**	**360.0**	**350.0**
Noise Index	**12.0**	**14.0**	**18.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-620)**	**(60-740)**	**(60-635)**
Manual mA	**390.0**	**280.0**	**370.0**
Noise Index	**8.0**	**9.0**	**11.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 5 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 6 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis 6.1/6.2/6.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for abdominal pathology other than hypervascular tumors.

Video for this protocol

Oral Contrast

Mix 4mL Iohexol 300 (Omnipaque) 300 MG/ML injection in 200mL of a clear liquid.

Give a total of 4 doses = 800mL (1 dose every 20 minutes over of an hour).

Give an additional dose on the CT scan table. Mix 8mL Iohexol 300 (Omnipaque) in 200mL of clear liquid.

If the patient is a bariatric post-op patient the patient will not drink up on the floor. Rather they will get between 100-150 mL oral contrast when they get to CT right before getting on the table. This should be in the order itself. If you have questions please ask the protocolling radiologist.

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

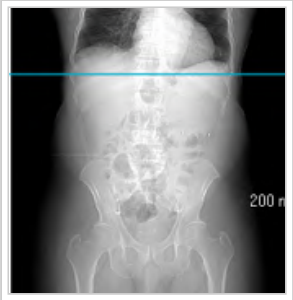
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

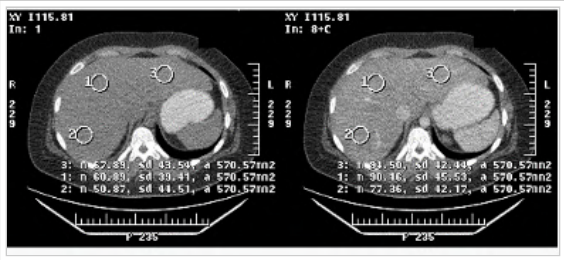
Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scout: from diaphragm through iliac crest or pubic symphysis
- Series 2 – Helical Scan
  - Scan Phase: Scanned at approximately 70 seconds from the start of the injection, based on Smart Prep time/density graph. Start scan just above the diaphragm, end just below pubic symphysis. If no pelvis is ordered/ indicated, end scan at iliac crests.
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold 50 Hounsfield units. No less than 60 and no more than 80 second delay.





Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	40	40	40
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	50	50	50
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Trauma - Abd/Pelvis 6.4/6.5/6.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Emergency evaluation for aortic injury or organ disruption. Routine creatinine cut-off for IV contrast administration does not apply in a trauma.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

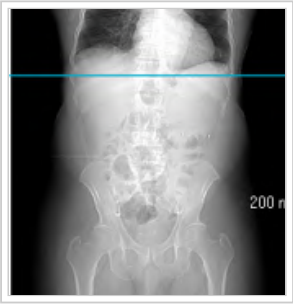
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

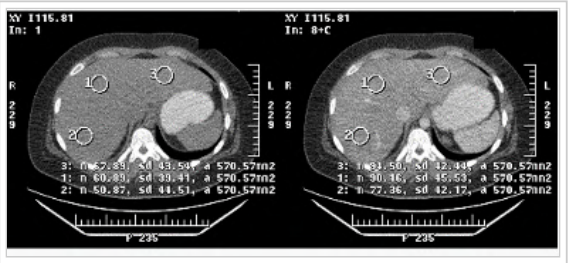
Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1** - PA & lateral scout: from diaphragm through iliac crests or pubic symphysis.
- **Series 2** - Scan Phase: Start scan just above the top of the diaphragm and end just below the pubic symphysis.
  - Smart Prep- Monitor Phase: Center over the liver. Put the ROI in the liver. Threshold 50 Hounsfield units. No greater than 80 second delay.





- **Series 3** - Delayed (Optional per MD) 7 minute delayed scans from the top of the kidneys through the bladder

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Reformats for the spine:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	2500/350	2	1	Sagittal

Reformat Instructions

Extra Recons on Trauma Protocols:

- In Trauma patients, we Retro Recon our L-spines from the Trauma Abd/Pel protocol. We no longer retro T spines off the Trauma Chest as mentioned in the revisions.
- Trauma Abd/Pelvis or Trauma Chest/Abd/Pelvis recons occupy the first 2 and 3 recons respectively. The subsequent 3 recons are pre-set for L spine scan parameters. You can turn these on if you have an order to recon the spine for the patient.
    - Remember once you turn these recons on you must adjust the FOV, start and end location, R/L centering, and A/P centering.
    - Remember to turn off these additional recons if you have to add a group to the end of your scan (get through the pelvis), or it will add that small group to the end of your L-spine.

Use Exam Split or Anonymize exam to separate the Lumbar Spine from the Trauma C/A/P or Trauma A/P.

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**40**	**40**	**40**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-620)**	**(60-740)**	**(60-635)**
Manual mA	**390.0**	**280.0**	**370.0**
Noise Index	**8.0**	**9.0**	**11.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 5 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

High Image Quality Cancer Follow-Up Abd/Pelvis 6.7/6.8/6.9

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Higher image quality version of the routine abdomen pelvis protocol. This protocol is to be used for cancer follow-up on patients with pathology known to be of a subtle nature. The order should specifically ask for this version of the abdomen pelvis routine protocol at the time of placing the order. Typically, a determination would be made based on age and disease process (usually dependent on whether they could have metastatic disease to the liver).

- Use HIQ on Colorectal, Pancreas, Esophageal, Lung and Breast cancer.
- Do not use HIQ on Lymphoma or Testicular cancer
- Use Biphasic protocol on hypervascular metastatic disease (Renal cell and Neuroendocrine tumors)
- Use on patients with Cholangiocarcinoma. (if 12 min delays are needed, the RAD will enter in the comment section, scan through the abdomen only using the flank pain protocol).

Oral Contrast

Mix 4mL Iohexol 300 (Omnipaque) 300 MG/ML injection in 200mL of a clear liquid.

Give a total of 4 doses = 800mL (1 dose every 20 minutes over of an hour).

Give an additional dose on the CT scan table. Mix 8mL Iohexol 300 (Omnipaque) in 200mL of clear liquid.

If the patient is a bariatric post-op patient the patient will not drink up on the floor. Rather they will get between 100-150 mL oral contrast when they get to CT right before getting on the table. This should be in the order itself. If you have questions please ask the protocolling radiologist.

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

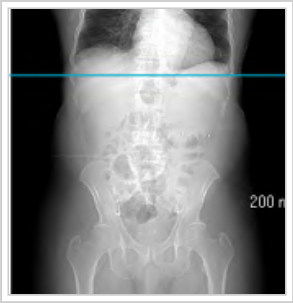
Same as previous study or as small as appropriate

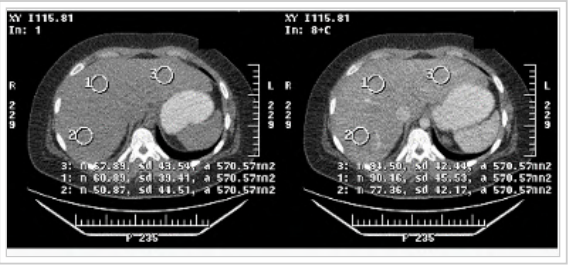
Scan Description

- Series 1 - PA & lateral scout: from diaphragm through iliac crest or pubic symphysis
- Series 2 – Helical Scan
    - Scan Phase: Scanned at approximately 70 seconds from the start of the injection, based on Smart Prep time/density graph. Start scan just above the diaphragm, end just below pubic symphysis. If no pelvis is

ordered/ indicated, end scan at iliac crests.

- Smart Prep- Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold 50 Hounsfield units. No less than 60 and no more than 80 second delay.





Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	40	40	40
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	50	50	50
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-620)**	**(60-620)**	**(60-500)**
Manual mA	**390.0**	**310.0**	**370.0**
Noise Index	**8.0**	**9.0**	**11.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis - Flank Pain 6.10/6.11/6.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

For patients with acute flank pain, have hydronephrosis, or who are being evaluated for renal stones but don't have a prior study, we are performing a full flank pain CT (non contrast abd/pelvis)

Oral Contrast

Scan with a full bladder. Hydrate ER patients if time allows.

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

None

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts: from diaphragm through pubic symphysis
- Series 2 - W/O IV Contrast - Start at the top of the kidneys and end at the base of the bladder.
- If Radiologist wants to convert to with IVC use the routine Abd/Pel protocol.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

- If diagnosis is uncertain and contrast is needed convert to a routine abd/pel, creatinine level is not necessary.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Limited Follow-Up Kidneys Only 6.13/6.14/6.15

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

For patients with known stones (based on prior flank pain CT) who are asymptomatic and being evaluated for stone burden, we are doing the limited renal stone follow up (limited z axis coverage of the kidneys just to look at stone burden).

Optional limited variant: follow-up for renal calculi (kidneys only).

Oral Contrast

Give a total 800 mL of water prior to scan (A 200mL dose every 20 minutes over an hour) if time allows. Scan the patient with a full bladder.

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

None

Field of View

Same as previous study or as small as appropriate

Scan Description

LIMITED exam for renal stone follow-up: (If the patient is extremely large use routine flank pain)

- Series 1 - PA and lateral scouts: from diaphragm through pubic symphysis
- Series 2 - W/O IV Contrast - Start at the top of the kidneys and end at bottom of the kidneys (approximately T12-L4 to rule out calculi).

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-580)**	**(60-610)**	**(45-510)**
Manual mA	**360.0**	**310.0**	**290.0**
Noise Index	**13.0**	**15.0**	**19.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis - Colonography 6.16/6.17/6.18

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Suspicion or evaluation of polyps or other abnormalities within the colon.

Oral Contrast

None

Pre-Scan Instructions

Make sure the patient has been prepped properly. Encourage use of restroom.

Place the patient on the CT table on their left side to insufflate the colon with CO2, left decubitus for ~ 1.5 liters, right decubitus for another 2.0-2.5 L for a total volume of 3.5-4.0 L, and then roll supine and assess for equilibrium pressures. If equilibrium pressures present, then scan supine series. Please be sure that carbon dioxide remains continuously infusing throughout the scan.

If the patient cannot lie on their stomach for the prone series, you can go straight to the Right Lateral Decubitus series after the supine series and add the Left Lateral if needed.

- **Proper positioning for the decubitus portion of the CTC screening exam**

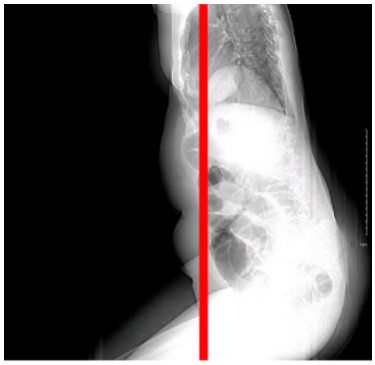
Just as patient positioning is critical in our routine supine and prone exams, it is also critical in the decubitus portion of our virtual colonoscopy screening exam. To provide the best image quality at the lowest dose, proper patient centering in the scanner gantry is critically important.
You cannot simply have the patient roll to their side, this will leave their pelvis in an off center position! You must have the patient roll and then confirm that they have shifted their pelvis back to the center of the couch. **Roll and shift!** Aim to get the patient's ilium bones centered in the scanner.
Note, it is also possible that after proper positioning, the patient may tilt to the side before the scan. Tilting to the side is a natural response to being placed in the decubitus position. Please watch for this and instruct the patient to return to the proper position.

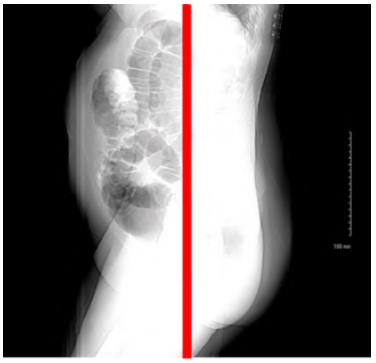
Poor Position

Bad Looking Scout

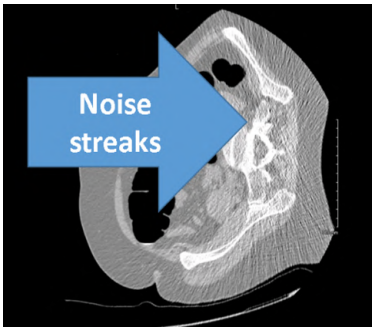
Good Position

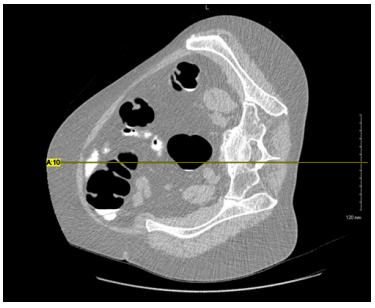
Good Looking Scout





Resulting Bad Looking Image **Resulting Good Looking Image**





Bone Density Scanning

- Supine Only: Invert patient toes, include lesser trochanters. Recon 3 is Pelvis only 2.5 x 2.5 (send to QCT-HIP)

IV Contrast Parameters

None

Field of View

Same as previous study or as small as appropriate

Scan Description

Scan is performed supine and prone on expiration.

- Series 1 - PA & Lateral supine scouts: top of the diaphragm through pubic symphysis
- Series 2 - Supine – Start above the highest flexure of the colon and scan through the rectum. Review images to check for proper colonic distention, pay special attention to sigmoid distention.
- Series 3 – Prone scouts: top of diaphragm through pubic symphysis.
  - After the scout deflate the balloon before scanning.
- Series 4 – Prone – Start above the highest flexure of the colon and scan though the rectum. Review images to check for proper colonic distention.
- Consider right decubitus Series 5 and 6 (Scout and Scan) if areas of sigmoid collapse are present on both views. These series are built into the protocol, you do not have to repeat series.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Send The 5mm images (Recon 2) and scouts are networked to PACS (ALI_Store)
- Network the THIN ST 1.25mm images from series 3 & 6 to these 3 destinations V3D3_Primary, V3D_Secondary, and (ALI_Source).
- Bone Density Recon 3 is sent to QCT-HIP and PACS (ALI_Store).
- Reformats are sent to PACS (ALI_Store)
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-470)**	**(30-470)**	**(30-470)**
Manual mA	**170**	**170**	**170**
Noise Index	**22.0**	**22.0**	**22.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**2000/0**	**2000/0**	**2000/0**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-470)**	**(30-470)**	**(30-470)**
Manual mA	**170**	**170**	**170**
Noise Index	**41.0**	**41.0**	**41.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**2000/0**	**2000/0**	**2000/0**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 5, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 6, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-470)**	**(30-470)**	**(30-470)**
Manual mA	**170**	**170**	**170**
Noise Index	**41.0**	**41.0**	**41.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 6, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**2000/0**	**2000/0**	**2000/0**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis - Urography 6.22/6.23/6.24

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

General renal imaging, hematuria work-up.

Patients < age 45: Urography

Patients > 45: Urothelial tumor follow up

Video for this protocol

Oral Contrast

Patient will arrive with a full bladder.

Have patient void before bringing patient into the scanner.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ Urography protocol

Injections	Contrast Dosage	Injection Rate
Injection 1	50 ml Iohexol 300 mgI/mL + 50 mL NaCl flush	1.5 mL/sec
Wait 10 minutes		
Injection 2	100 ml Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scouts: from top of diaphragm through bladder.
- Series 2 - Without IV contrast: Top of the kidneys through bladder base.
- INJECTION – Inject 50cc of contrast @ 1.5cc/sec. Wait 10 min, THEN proceed to the next series.
- Series 3 - Parenchymal phase: inject the remaining contrast at 3cc/sec. Start the injection and the scanner at the same time, there is a 115 sec delay built into the scanner. Start at the top of the kidneys and end at the bottom of the bladder base in women and the bottom of the prostate in men.

Reformat Instructions

- Use DMPR from THIN ST of the non-contrast phase for the first coronal reformats
- Use DMPR from THIN ST of the parenchymal phase for the second set of reformats (sagittal/coronal).

Reformats

Non-Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO BODY	THIN ST	DMPR	Average	350/50	3	2	Coronal

Contrast (do these for all three phases if using the Urothelial tumor follow-up protocol)

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images (including the thin without series) are networked to PACS (ALI_Store), except the Parenchymal thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.992
Speed (mm/rot)	79.40	79.40	79.40
Rotation Time (s)	0.5	0.7	1
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-600)	(60-650)	(45-530)
Manual mA	380.0	320.0	300.0
Noise Index	11.0	12.5	16.0
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-610)**	**(70-650)**	**(45-530)**
Manual mA	**380.0**	**330.0**	**300.0**
Noise Index	**8.5**	**9.5**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd-Liver - Biphasic 6.25/6.26/6.27

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Arterial and Venous phase scanning for the evaluation of hypervascular metastatic disease to the liver such as neuroendocrine tumor, RCC.

Videos for this protocol

Liver Scanning:

Biphasic Liver Protocol:

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol;

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 5 mL/sec

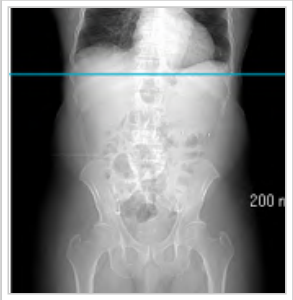
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

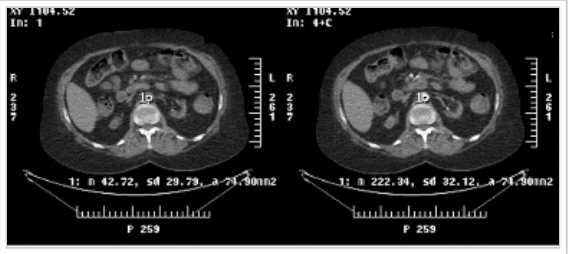
Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scout: from top of diaphragm through iliac crests (for abdomen only) or pubic symphysis (if a pelvis is ordered).
- Series 2 - With IV Contrast: This scan is performed in 2 groups.
  - 1st group - Late Arterial Phase - Start scan at the top of the liver and end at the bottom of the liver.
  - 2nd group - Portal Venous Phase - Scanned at 70 seconds from the start of the injection. Adjust Prep Group delay to achieve this. Start at the top of the liver (same place as group 1). For Abdomen only end at the iliac crests or for Abdomen/Pelvis end at pubic symphysis.
- If doing a Chest with a biphasic, include the chest with the 2nd group. Be sure to subtract the amount of time it takes to scan through the chest from the 70 seconds from the start of injection.
  - Smart Prep- Monitor Phase: Place ROI on the aorta at the level of mid liver. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.** There will be a 15 second diagnostic delay built in.





Reformat Instructions

If doing a chest turn off DMPR and do reformats manually for both the Chest and Abdomen/Pelvis separately.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	15	15	15
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	100	100	100
Diagnostic Delay	15	15	15

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**0.6**	**0.6**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-510)**	**(70-660)**	**(60-710)**
Manual mA	**320.0**	**330.0**	**400.0**
Noise Index	**12.5**	**13.5**	**16.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd-Liver - Triphasic 6.28/6.29/6.30

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Work-up of a potential liver transplant recipient.

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

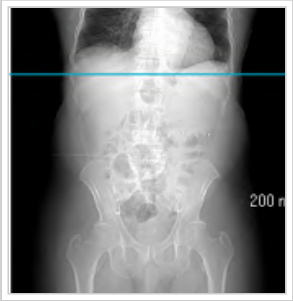
Patient Weight	Contrast Dosage	Injection Rate
All Adults	150 mL Iopamidol 370 mgI/mL (Isovue) + 70 mL NaCl flush	5 mL/sec

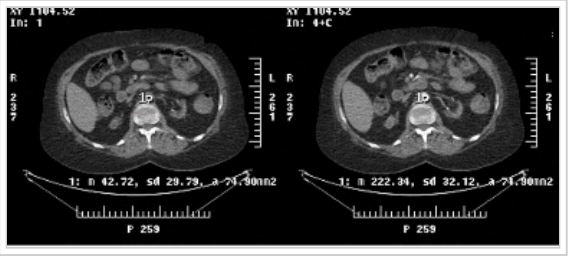
Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scout: from diaphragm through iliac crest or pubic symphysis.
- Series 2 - Without IV contrast: (to localize) Start at the top of the liver and end at the bottom of the liver. Make sure the proximal SMA is on the scan.
- Series 3 (3 groups)
  - 1st group - Arterial Phase: Start scan just above the liver and end just below the bottom of the liver or proximal SMA which ever is lower.
  - 2nd group - Late Arterial Phase: Start scan just below the liver (same coordinates and table positions) and end just above the liver. This group is scanned bottom up.
  - 3rd group – Portal Venous Phase: 70 seconds after the start of the injection, start scan just above the liver and end at the iliac crests for the Abdomen or at pubic symphysis for the Abdomen/Pelvis
- Smart Prep - Monitor Phase - Place ROI on the aorta at the level of mid liver. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.** Prep Group delays are pre-programmed for the Late Arterial and Portal venous phases.





- If doing a Chest with a Triphasic, **do not** include the chest with the abdomen groups (dose and scan speeds are not adequate). Perform the entire triphasic liver and then select the routine chest protocol as quickly as possible to get a delayed phase exam of the chest.

Reformat Instructions

See the table below.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins send to Thin PACS (ALI_Source) and 3D Lab.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.992
Speed (mm/rot)	79.40	79.40	79.40
Rotation Time (s)	0.35	0.35	0.35
kV	120	120	120
AEC type	smart mA	smart mA	smart mA
mA Range	(30-470)	(30-470)	(30-470)
Manual mA	170	170	170
Noise Index	22.0	22.0	22.0
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**2**	**2**	**2**
Enhancement Threshold (HU)	**100**	**100**	**100**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-540)**	**(70-700)**	**(60-720)**
Manual mA	**340.0**	**350.0**	**430.0**
Noise Index	**12.0**	**13.0**	**16.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 3, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.8**	**0.8**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-550)**	**(70-710)**	**(50-610)**
Manual mA	**340.0**	**350.0**	**350.0**
Noise Index	**14.0**	**15.0**	**19.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.8**	**0.8**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-550)**	**(70-710)**	**(50-610)**
Manual mA	**340.0**	**350.0**	**350.0**
Noise Index	**14.0**	**15.0**	**19.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Group 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd-Adrenal Gland - Adenoma 6.31/6.32/6.33

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Characterization for adrenal mass (For a pheochromocytoma do routine abdomen)

Video for this protocol

Oral Contrast

NONE. If converted to with IVC give a 200mL dose of water on the CT scan table while the IV is being placed.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

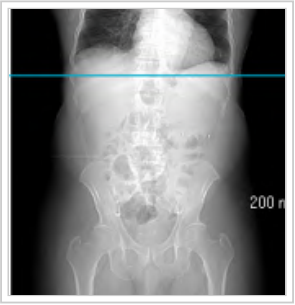
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

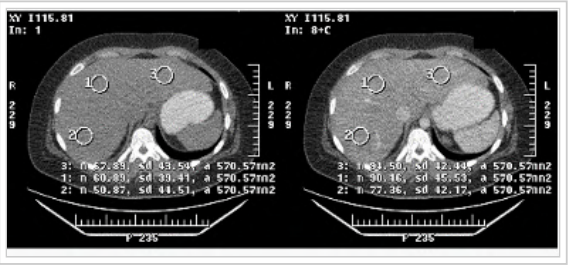
Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1** - PA & lateral scouts: from diaphragm through iliac crests or pubic symphysis.
- **Series 2** - Without IV contrast: Start at the top of the adrenal glands and end at the bottom of the adrenal glands. **Check this series with physician before performing series 3, 4 and 5**
- **Series 3** - Helical Scan with IV Contrast: Start scan just above the diaphragm, end scan at iliac crests. If pelvis is ordered, end scan just below pubic symphysis.
  - Smart Prep - Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold 50 Hounsfield units. No more than 80 seconds delay.





- **Series 4** - Delayed Scan: Wait 15 minutes and then scan through the adrenal glands only.

Reformat Instructions

Use DirectMPR on Recon 2 for **BOTH** the non contrast and with contrast phases.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.508	0.508	0.508
Speed (mm/rot)	40.60	40.60	40.60
Rotation Time (s)	0.5	0.7	1
kV	120	120	120
AEC type	smart mA	smart mA	smart mA
mA Range	(60-490)	(70-650)	(50-610)
Manual mA	300.0	330.0	350.0
Noise Index	7.0	9.5	14.5
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**40**	**40**	**40**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-550)**	**(70-690)**	**(50-610)**
Manual mA	**340.0**	**340.0**	**350.0**
Noise Index	**8.0**	**11.0**	**16.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-550)**	**(70-690)**	**(50-610)**
Manual mA	**340.0**	**340.0**	**350.0**
Noise Index	**8.0**	**11.0**	**16.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Abd-Pancreas - Pancreas Cancer (Neoplasm Screening) 6.40/6.41/6.42

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Suspicion of pancreatic neoplasm. Use this protocol if patient has already had pancreatic neoplasm CTA.

Preoperative evaluation of known pancreatic neoplasm.

Video for this protocol

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - A/P & lateral scouts - Diaphragm through Iliac crest.
- Series 2 With IV Contrast (This is performed in 2 groups.)
  - NO SMART PREP NEEDED - Start 40 seconds after the start of the injection. (If patient appears ill, then SMART PREP over the liver; put ROI in the aorta - begin 20 sec. after contrast is seen in the aorta. This delay is built into the diagnostic delay of smart prep.)
  - 1st group: With IV Contrast: Start at the top of the liver and end at the iliac crest.
  - 2nd group: Portal phase: 70 secs after injection, start at the top of the liver and end at the iliac crest for the abdomen only or the pubic symphysis if a pelvis is ordered.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.508	0.508	0.508
Speed (mm/rot)	40.60	40.60	40.60
Rotation Time (s)	0.6	0.9	1
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-620)	(60-620)	(60-635)
Manual mA	390.0	310.0	370.0
Noise Index	9.5	11.0	14.0
Slice Thickness (mm)	2.5	2.5	2.5
Interval (mm)	1.5	1.5	1.5

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-610)**	**(70-650)**	**(45-530)**
Manual mA	**380.0**	**330.0**	**300.0**
Noise Index	**8.5**	**9.5**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis - Kidney Tumor 6.49/6.50/6.51

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Suspicion or evaluation of small renal neoplasm

Video for this protocol

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

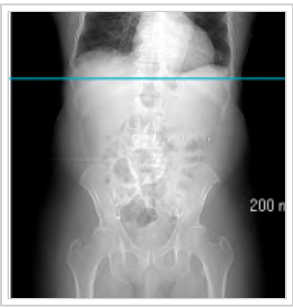
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

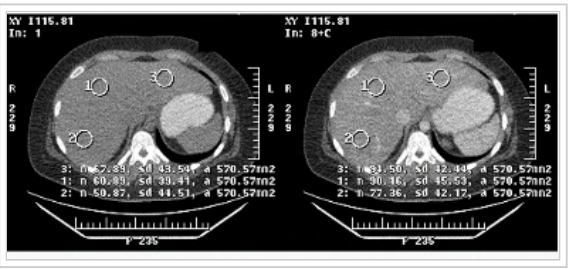
Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1** - PA and lateral scouts: from diaphragm through iliac crest or pubic symphysis if pelvis is ordered.
- **Series 2** – Without IV contrast: Start at the top of the kidneys and end at the bottom of the kidneys. Approximate levels of T10 – L3.
- **Series 3**- With contrast: Start at the top of the diaphragm, for Abdomen only end at the iliac crest or for Abdomen/Pelvis end at pubic symphysis
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold of 70 Hounsfield units. No less than 60 and no more than 80 second delay.





- **Series 4** - 2 minute delayed sequence through kidneys only

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.992
Speed (mm/rot)	79.40	79.40	79.40
Rotation Time (s)	0.35	0.5	0.8
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-660)	(70-690)	(45-510)
Manual mA	410.0	350.0	290.0
Noise Index	12.5	14.0	18.0
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**40**	**40**	**40**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-610)**	**(70-650)**	**(45-530)**
Manual mA	**380.0**	**330.0**	**300.0**
Noise Index	**8.5**	**9.5**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

CTA Abd - Renal Donor 6.52/6.53/6.54

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

- Work-up of a potential renal donor.
- Assess for renal auto transplant.

Video for this protocol

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Have patient void before bringing patient into the scanner.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Load: 150 mL Iopamidol 370 mgI/mL (Isovue) + 90 mL NaCl Flush

1. Scan without series
2. Start Renal Donor Injection Part 1
3. Wait 5 minutes
4. Start Renal Donor Injection Part 2 and CT With Contrast series simultaneously, there is a Prep Group Delay of 70 seconds built in to the protocol.

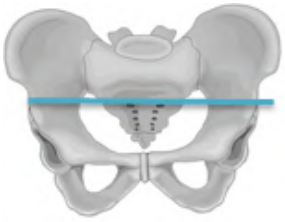
2 Part, Multi-Phase Injection	Contrast Dosage	Injection Rate
Injection Part 1	20 mL Iopamidol 370 mgI/mL (Isovue) + 20 mL NaCl flush	5 mL/sec
Wait 5 Minutes then Start Multi-Phase Injection		
Injection Part 2, Phase 1	30 mL Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	3 mL/sec
Pause 20 seconds		
Injection Part 2, Phase 2	100 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
18 G Antecubital IV		

Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1** - PA and lateral scouts: from diaphragm to the bottom of the SI joints.
- **Series 2** - Without IV contrast: Through kidneys; approximate levels T12 – L4 to R/O calculi.
- Inject: **Using Renal Donor Part 1 injection protocol. Wait 5 minutes**.
- **Series 3** - Vascular Phase: Start at the top of the kidneys and end just below the SI Joints. Start the multi-phase injection, **using renal donor part 2 injection protocol** and the scan at the same time, there is a 70sec delay built in.



- **Series 4** – Parenchymal phase: Begin scan 3 min from start of multi-phase injection. Start at the top of liver and end at the iliac crest. For **Auto Transplant** - please scan through pelvis on 3-minute delays.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

All images are networked to PACS (ALI_Store) (including the thin CTA images) with an exception for the thins from the venous phase should be sent to Thin PACS (ALI_Source).

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-690)**	**(45-510)**
Manual mA	**410.0**	**350.0**	**290.0**
Noise Index	**12.5**	**14.0**	**18.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-540)**	**(70-700)**	**(60-720)**
Manual mA	**340.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**23.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**0.6**	**0.6**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-510)**	**(70-660)**	**(60-710)**
Manual mA	**320.0**	**330.0**	**400.0**
Noise Index	**12.5**	**13.5**	**16.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd-Small Bowel - Enterography 6.55/6.56/6.57

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for small bowel disease.

Video for this protocol

Oral Contrast

Breeza = Give a total dose of 1,500 mL (3 bottles total).

Give the first bottle of Breeza (500 mL) over 15 minutes, the second bottle (500 mL) over the next 15 minutes and then the third bottle (500 mL) over the last 30 minutes. The total drinking time equals 1 hour.

Give an additional 200mL dose of water on the CT scan table. No Positive Oral Contrast.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T PA protocol

To set up P3T= choose P3T, Thorax, PA then click on ok. Confirm contrast and load fluids. Enter scan duration and click ok.

Iopamidol 370 mgI/ml (Isovue) injection

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts: from diaphragm through pubic symphysis
- Series 2 - Portal phase: 55 seconds after injection, start at the diaphragm and end at the pubic symphysis.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-610)**	**(70-650)**	**(45-530)**
Manual mA	**380.0**	**330.0**	**300.0**
Noise Index	**10.5**	**12.0**	**15.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

CTA Abd - Obscure GI Bleed 6.58/6.59/6.60

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for cause of obscure gastrointestinal bleed.

Video for this protocol

Oral Contrast

Breeza = Give a total dose of 1,500 mL (3 bottles total).

Give the first bottle of Breeza (500 mL) over 15 minutes, the second bottle (500 mL) over the next 15 minutes and then the third bottle (500 mL) over the last 30 minutes. The total drinking time equals 1 hour.

Give an additional 200mL dose of water on the CT scan table. No Positive Oral Contrast.

Pre-Scan Instructions

None

IV Contrast Parameters

Obscure GI Bleed, multi-phase injection:

Injection Phase	Contrast Dosage	Injection Rate
Phase 1	30 mL Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	3 mL/sec
Pause 10 Seconds		
Phase 2	100 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
18 G Antecubital IV		

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts: from diaphragm through pubic symphysis.
- Series 2 - Without IV contrast: From diaphragm to pubic symphysis.
- Series 3 - Vascular Phase: From diaphragm to pubic symphysis. Start the multi-phase injection and the scan at the same time; the scan will have a 60 sec delay built in so that scan acquisition will begin at 60 sec after the start of the multi-phase injection.
- Series 4 – Delayed phase: Begin scan 3 min from start of multi-phase injection. From diaphragm to pubic symphysis.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	Vascular phase THIN ST	DMPR	Average	350/50	3	2	Sagittal
CO BODY	Vascular phase THIN ST	DMPR	Average	350/50	3	2	Coronal
SA BODY	Vascular phase THIN ST	Manual	MIP	350/50	10	5	Sagittal
SA BODY	Delayed phase THIN ST	DMPR	Average	350/50	3	2	Sagittal
CO BODY	Delayed phase THIN ST	DMPR	Average	350/50	3	2	Coronal

Networking

- All images are networked to PACS (ALI_Store) (including the arterial phase for the mesenteric), the thin series send to Thin PACS (ALI_Source) and 3D Lab.
- If there is a chest scanned send all images networked to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.992
Speed (mm/rot)	79.40	79.40	79.40
Rotation Time (s)	0.35	0.5	0.8
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-660)	(70-690)	(45-510)
Manual mA	410.0	350.0	290.0
Noise Index	12.5	14.0	18.0
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-540)**	**(70-700)**	**(60-720)**
Manual mA	**340.0**	**350.0**	**430.0**
Noise Index	**10.0**	**10.5**	**13.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.8**	**0.8**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-550)**	**(70-710)**	**(50-610)**
Manual mA	**340.0**	**350.0**	**350.0**
Noise Index	**14.0**	**15.0**	**19.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

CTA Abd - Mesenteric Ischemia 6.61/6.62/6.63

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for mesenteric ischemia.

Video for this protocol

Oral Contrast

Give a total 400 mL of water prior to scan (A 200mL dose every 15 minutes over 30 minutes).

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T PA protocol

To set up P3T= choose P3T, Thorax, PA then click on ok. Confirm contrast and load fluids. Enter scan duration and click ok.

Iopamidol 370 mgI/ml (Isovue) injection

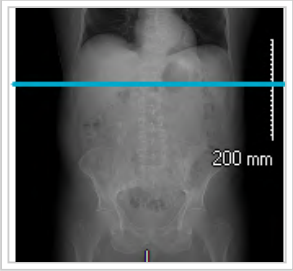
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

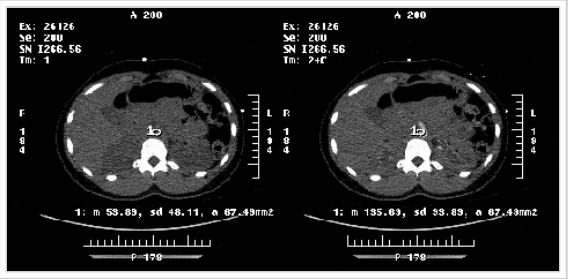
Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts: from diaphragm through pubic symphysis
- Series 2 - Helical scan performed in 2 groups
  - 1st Group: Arterial phase: Start scan mid-liver just above the celiac artery and end at the level of the femoral heads.
  - 2nd Group: Portal Venous phase: Scanned at 70 seconds after injection. Adjust Prep Group delay to achieve this. Start at the diaphragm and end at the pubic symphysis.
    - Smart prep-Monitor Phase: at the level of the celiac on the aorta. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.**





Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store) (including the arterial phase for the mesenteric), the thin series send to Thin PACS (ALI_Source) and 3D Lab.
- If there is a chest scanned send all images networked to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	10	10	10
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	100	100	100
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-540)**	**(70-700)**	**(60-720)**
Manual mA	**340.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**23.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Urothelial Tumor Follow-up 6.70/6.71/6.72

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Patients < age 45: Urography

Patients > 45: Urothelial tumor follow up

This protocol will be for patients with known urothelial cancer (bladder or ureters) and NO current evidence of or suspected metastatic disease. Eval for recurrence, high risk recurrence, evaluate urothelium or high risk TCC in history. Also, some of these patients will not have a bladder (so no need for those to void as they will have a urostomy).

For patients with known metastatic disease or screening for metastatic disease use High image quality cancer follow up protocol

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Have patient void before bringing patient into the scanner.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scouts: from diaphragm through bladder.
- Series 2 - Helical Scan, Without Contrast
  - Scan Range: start scan at the top of the diaphragm and end at pubic symphysis.
- Series 3 - Helical Scan, Urothelial Phase
  - Start the injection and the scanner at the same time, there is a 60 sec delay built into the scanner.
  - Scan Range: Start scan at the top of the diaphragm and end at pubic symphysis.
- Series 4 – Helical Scan, Delay
  - Wait 10 minutes before scanning this phase

- Scan Range: Start at the top of the kidneys and end at the bottom of the bladder base or the prostate on men.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Contrast (do these for all three phases if using the Urothelial tumor follow-up protocol)

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.508
Speed (mm/rot)	79.40	79.40	40.60
Rotation Time (s)	0.6	0.9	0.7
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(90-690)	(70-690)	(45-530)
Manual mA	430.0	340.0	300.0
Noise Index	10.0	11.0	14.5
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-610)**	**(70-650)**	**(45-530)**
Manual mA	**380.0**	**330.0**	**300.0**
Noise Index	**8.5**	**9.5**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-610)**	**(70-650)**	**(45-530)**
Manual mA	**380.0**	**330.0**	**300.0**
Noise Index	**8.5**	**9.5**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis - Venogram (Pre-IVC Filter Removal) 6.73/6.74/6.75

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

This is a standard CT of the abdomen and pelvis optimized for evaluation of residual clot in the IVC prior to IVC filter removal

Oral Contrast

None

Pre-Scan Instructions

None

IV Contrast Parameters

Use the Medrad™ P3T Abdomen protocol, Iohexol (Omnipaque) 300 mg/mL injection at a rate of 2 mL per second.

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

As small as possible

Scan Description

- Series 1 - AP/Lateral Scouts: from diaphragm through pubic symphysis.
- Series 2
  - Timing: Begin 120 seconds after the injection.
  - With IV Contrast: Scan from the top of the diaphragm, end at the pubic symphysis.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

CTA Abd/Pelvis - Active Bleeder 6.79/6.80/6.81

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Active bleeding in the abdomen/pelvis.

Post-Surgery/Intervention.

Dropping hemoglobin of unclear source.

If only looking for hematoma, consider non con ab/pelvis

If concern for active bleeding, need to identify source, consider active bleeder protocol

Can consult with clinical team to clarify question/concern.

Oral Contrast

None

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T PA protocol

To set up P3T= choose P3T, Thorax, PA then click on ok. Confirm contrast and load fluids. Enter scan duration and click ok.

Iopamidol 370 mgI/ml (Isovue) injection

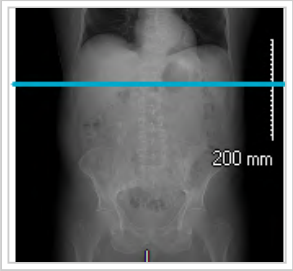
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

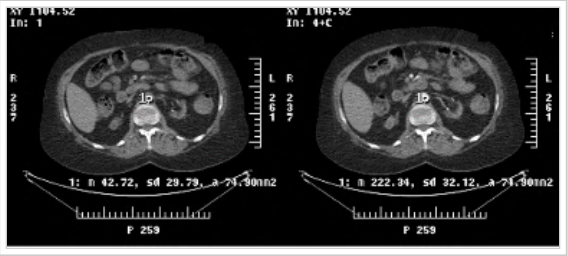
Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1** - PA and lateral scouts: from diaphragm through pubic symphysis
- **Series 2** - Helical Non Contrast: Start scan just above the diaphragm end just below the pubic symphysis.
- **Series 3** - Helical scan performed in 2 groups
  - 1st Group: Arterial phase: Start scan just above the diaphragm and end scan just below the pubic symphysis.
  - 2nd Group: Parenchymal phase: Scanned at 70 seconds after injection. Adjust Prep Group delay to achieve this. Start just above the diaphragm and end scan just below the pubic symphysis.
    - Smart prep - Monitor Phase: at the level of the celiac on the aorta. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.**





Reformat Instructions

Use DMPR on THIN ST. Perform reformats for all phases (non contrast, arterial, and parenchymal phases).

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store) (including the arterial phase for the mesenteric), the thin series send to Thin PACS (ALI_Source) and 3D Lab.
- If there is a chest scanned send all images networked to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**100**	**100**	**100**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-540)**	**(70-700)**	**(60-720)**
Manual mA	**340.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**23.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd-Liver - Hepatocellular Carcinoma (HCC) 6.82/6.83/6.84

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Arterial, Venous, and Delayed phase scanning for the evaluation of possible hepatocellular carcinoma. This protocol fulfills the UNOS criteria.

Video for this protocol

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol;

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 5 mL/sec

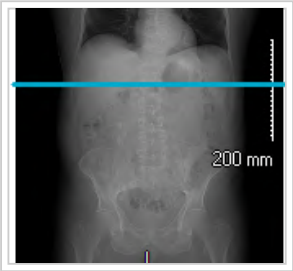
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

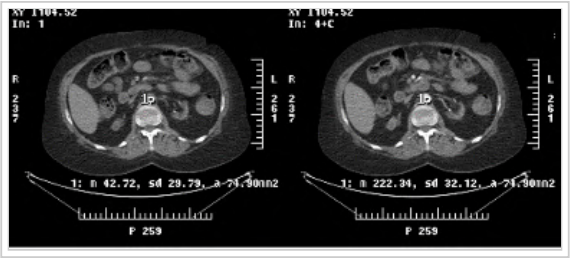
Field of View

Same as previous study or as small as appropriate

Scan Description

- **Series 1** - PA & lateral scout: from diaphragm through iliac crests or pubic symphysis.
- **Series 2** – Helical Scan- Scan Phase With IV Contrast: This scan is performed in 2 groups.
  - 1st group - Late Arterial Phase - Start scan just above the liver and end just below the bottom of the liver.
  - 2nd group - Portal Venous Phase - Scanned at 70 seconds from the start of the injection. Adjust Prep Group delay to achieve this. Start scan just above the liver (same place as group 1). For Abdomen only end at the iliac crests or for Abdomen/Pelvis end at pubic symphysis.
- If doing a Chest with a biphasic, include the chest with the 2nd group. Be sure to subtract the amount of time it takes to scan through the chest from the 70 seconds from the start of injection.
  - Smart Prep- Monitor Phase: Place ROI on the aorta at the level of mid liver. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.** There will be a 15 second diagnostic delay built in.





- **Series 3** - Delay Phase - 3 Min Delay
  - Coverage: Start at top of diaphragm and end at bottom of the liver.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- Chest scan send all series to PACS (ALI_Store) including the Dose Information Slide.
- All body images are networked to PACS (ALI_Store), except the body thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	15	15	15
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	100	100	100
Diagnostic Delay	15	15	15

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**0.6**	**0.6**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-510)**	**(70-660)**	**(60-710)**
Manual mA	**320.0**	**330.0**	**400.0**
Noise Index	**12.5**	**13.5**	**16.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.6**	**0.6**	**0.6**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-510)**	**(70-660)**	**(60-710)**
Manual mA	**320.0**	**330.0**	**400.0**
Noise Index	**12.5**	**13.5**	**16.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Cystogram 8.10/8.11/8.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Bladder tumor.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Bladder contrast – 20 ml of Iohexol 300 in a 500 ml bag of normal saline. The saline should be warmed to body temperature if time allows. Check with radiologist to see if without series needed first.

- Using sterile technique, connect the tubing from the bag of 2% contrast (see # 6) to the Foley catheter and allow the bladder to fill retrograde. Make sure to place Foley below the level of the bladder.
- If the patient is oriented, have the patient tell you when they are getting uncomfortably full. If they are unable to let you know, run about 300 ml in to start. Note on series description the amount of contrast instilled into the bladder.

IV Contrast Parameters

None

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scout: from crest to pubic symphysis
- Series 2 - Pre bladder contrast. Scan from the top of the crest through the pubic symphysis (skip this step if the scan was ordered with a trauma A/P)
- Series 3 – Full bladder contrast. Scan from the top of the crest through the pubic symphysis. Make sure contrast has filled the entire bladder

Note: Annotate on the series description the amount of contrast used for the cystogram

Post void (optional) - Check with radiologist, each case is different. If a post void in needed, click on repeat series. Use the same coverage and parameters as S3.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.508
Speed (mm/rot)	79.40	79.40	40.60
Rotation Time (s)	0.6	0.9	0.7
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(90-690)	(70-690)	(45-530)
Manual mA	430.0	340.0	300.0
Noise Index	10.0	11.0	14.5
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**0.6**	**0.9**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-690)**	**(70-690)**	**(45-530)**
Manual mA	**430.0**	**340.0**	**300.0**
Noise Index	**10.0**	**11.0**	**14.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Body Pelvis 8.16/8.17/8.18

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for abdominal pathology other than hypervascular tumors.

Video for this protocol

Oral Contrast

Oral Contrast:

- Patient receives a total volume of 1000mL (1L) of oral contrast. Give a total of 4 doses (800 mL) plus a 2x concentrated (200 mL) dose on the CT scanner.
- 1 Dose = Mix 4mL of Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid, no ice, no carbonation.
- Give a total of 4 doses = 800mL (Outpatients: 1 dose every 15 minutes over one hour, Inpatients: 1 dose every 30 mins over two hours).
- Give an additional 2x concentrated dose on the CT scan table. Mix 8mL of Iohexol 300mg/ mL (Omnipaque) in 200mL of clear liquid.

Bariatric Post- Op (Gastric By-Pass) patients:

- These patients are only able to tolerate 150 mL. No need for extended drink duration. Oral contrast ONLY given on the CT scan table just prior to scanning.
- Mix 4mL Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid.
- Give 3/4 of 1 dose (150mL of 200mL) on the CT table.

Pre-Scan Instructions

Clamp Foley catheter prior to scanning. Make sure to place Foley below the level of the bladder.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scout: from diaphragm through pubic symphysis
- Series 2 – 70 sec delay start scan at the top of the iliac crests and end at pubic symphysis

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.508
Speed (mm/rot)	79.40	79.40	40.60
Rotation Time (s)	0.6	0.9	0.7
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(90-690)	(70-690)	(45-530)
Manual mA	430.0	340.0	300.0
Noise Index	10.0	11.0	14.5
Slice Thickness (mm)	3.75	3.75	3.75
Interval (mm)	2.5	2.5	2.5

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/50**	**350/50**	**350/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Low**	**40% / 20% / Low**	**40% / 20% / Low**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Abd/Pelvis - R/O Hernia (Use routine Abd/Pelvis protocol)

For the limited inguinal hernia protocol there is no oral and no IV contrast

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Standard CT of the abdomen and pelvis with the patient performing a Valsalva maneuver during the scan aquisition. This increases the likelihood of detecting hernia.

Video for this protocol

Oral Contrast

Oral Contrast:

- Patient receives a total volume of 1000mL (1L) of oral contrast. Give a total of 4 doses (800 mL) plus a 2x concentrated (200 mL) dose on the CT scanner.
- 1 Dose = Mix 4mL of Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid, no ice, no carbonation.
- Give a total of 4 doses = 800mL (Outpatients: 1 dose every 15 minutes over one hour, Inpatients: 1 dose every 30 mins over two hours).
- Give an additional 2x concentrated dose on the CT scan table. Mix 8mL of Iohexol 300mg/ mL (Omnipaque) in 200mL of clear liquid.

Bariatric Post- Op (Gastric By-Pass) patients:

- These patients are only able to tolerate 150 mL. No need for extended drink duration. Oral contrast ONLY given on the CT scan table just prior to scanning.
- Mix 4mL Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid.
- Give 3/4 of 1 dose (150mL of 200mL) on the CT table.

Pre-Scan Instructions

Technologists should educate the patient on how to perform the Valsalva maneuver. When asked to breathe in, the patient should be instructed to bear down forcefully. They will need to hold this for the 10-20 seconds of the scan. Use the Routine Abdomen/Pelvis protocol in the scanner.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

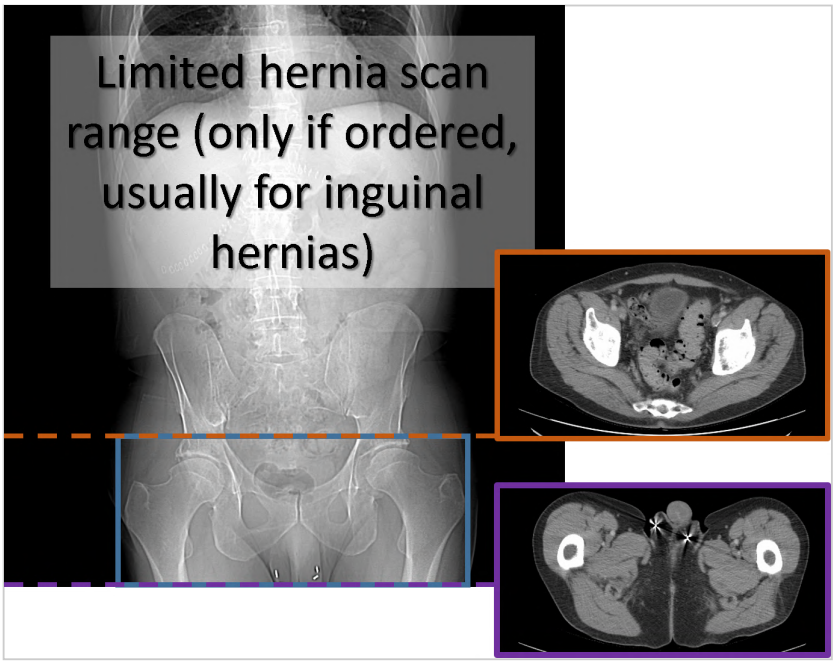
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA & lateral scout: from diaphragm through iliac crest (for abdomen only) or pubic symphysis (for abdomen/pelvis)
- Series 2
  - Smart Prep- Monitor Phase: Center over the liver. Put 3 ROIs in the liver. The smartprep threshold is 50 Hounsfield units. Wait no longer than 80 seconds before starting the scan if the threshold is not reached.
  - Helical Scan- Scan Phase: Start scan at the top of the diaphragm, for Abdomen Only end at the iliac crests or for Abdomen/Pelvis end at pubic symphysis.
    - As the scanner instructs the patient to "breathe in and hold it", please tell the patient to "bear down". Intermittently reinforce it by telling the patient to keep holding it. When the scanner says "breathe" please add "and relax".



Scan range for limited hernia orders (usually for inguinal hernia).

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	350/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	350/50	3	2	coronal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Same as Abd/Pelvis 6.1/6.2/6.3

Neck/Chest/Abd/Pelvis

Please remember to change the prep group delay in the neck to 45 seconds.

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for adenopathy, abscess, and neoplasm.

Oral Contrast

Oral Contrast:

- Patient receives a total volume of 1000mL (1L) of oral contrast. Give a total of 4 doses (800 mL) plus a 2x concentrated (200 mL) dose on the CT scanner.
- 1 Dose = Mix 4mL of Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid, no ice, no carbonation.
- Give a total of 4 doses = 800mL (Outpatients: 1 dose every 15 minutes over one hour, Inpatients: 1 dose every 30 mins over two hours).
- Give an additional 2x concentrated dose on the CT scan table. Mix 8mL of Iohexol 300mg/ mL (Omnipaque) in 200mL of clear liquid.

Bariatric Post- Op (Gastric By-Pass) patients:

- These patients are only able to tolerate 150 mL. No need for extended drink duration. Oral contrast ONLY given on the CT scan table just prior to scanning.
- Mix 4mL Iohexol 300 mg/mL (Omnipaque) in 200mL of clear liquid.
- Give 3/4 of 1 dose (150mL of 200mL) on the CT table.

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

Scan Combination	Contrast Dosage	Injection Rate
C/A/P + Neck Combo		
C/A/P	100 mL Iohexol 300 mgI/mL + 20 mL NaCl flush	3 mL/sec
Neck	75 mL Iohexol 300 mgI/mL + 20 mL NaCl flush	2 mL/sec
Change the Prep Delay to 45 seconds (from 85 seconds) on the Neck protocol.		
Chest + Neck Combo		
Chest	75 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	3 mL/sec
Neck	75 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	2 mL/sec
Change the Prep Delay to 45 seconds (from 85 seconds) on the Neck protocol.		

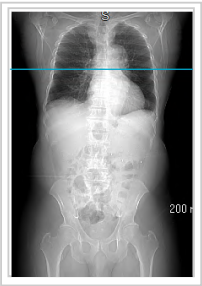
Field of View

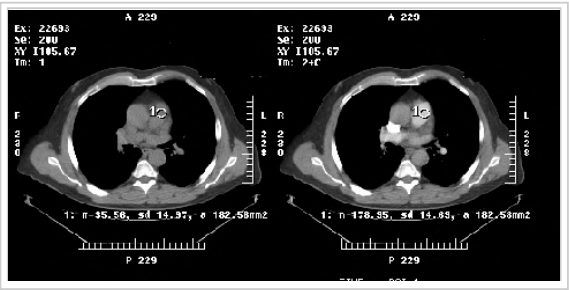
Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts: manually adjust scout range to cover lower neck through iliac crest (for abdomen) or pubic symphysis (for abdomen/pelvis)

- Series 2 - Performed in 2 groups.
  - 1st group – Chest - Inspiration: Start just above the lung apices and extend through the lung bases.
  - 2nd group – Abd/Pel: Scanned at 70 seconds from the start of the injection. Adjust Prep Group delay to achieve this. For Abdomen only, end at the iliac crests; for Abdomen/Pelvis, end at pubic symphysis.
  - Smart Prep - Center over pulmonary artery, threshold 100 HU. No greater than a 50 second delay.





- It is important to scan the CT Neck as quickly as possible to take advantage of residual contrast from CAP bolus.
  - You will have to End Exam, re-position, re-zero, and re-scout the patient.
  - The CT Neck Scan requires a separate contrast injection
  - **Please remember to change the prep group delay in the neck protocol to 45 seconds**

Reformat Instructions

Use DMPR on THIN ST.

Reformats

C/CAP

Name	Source Series Name	DMPR or Manual		Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN LUNG	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	sagittal
CO	THIN LUNG	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	coronal
Axial MIP	THIN ST	Manual		MIP	1500/-700	10	5	AX MIPS
SA CV	THIN ST	DMPR (Abd/Pelvis)		Average	350/50	3	2	sagittal
CO CV	THIN ST	DMPR (Abd/Pelvis)		Average	350/50	3	2	coronal

Neck

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	300/35	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	300/35	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- Chest scan - send the entire study to PACS (ALI_Store), including the Dose Information Slide.
- Abd/Pel scan - all images are networked to PACS (ALI_Store), except the thins send to Thin PACS (ALI_Source).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Use routine CAP protocol followed by routine Neck Protocol.

Brain - Routine and Pediatric NAT/Trauma (Helical Mode) 1.1/11.1/11.2/11.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

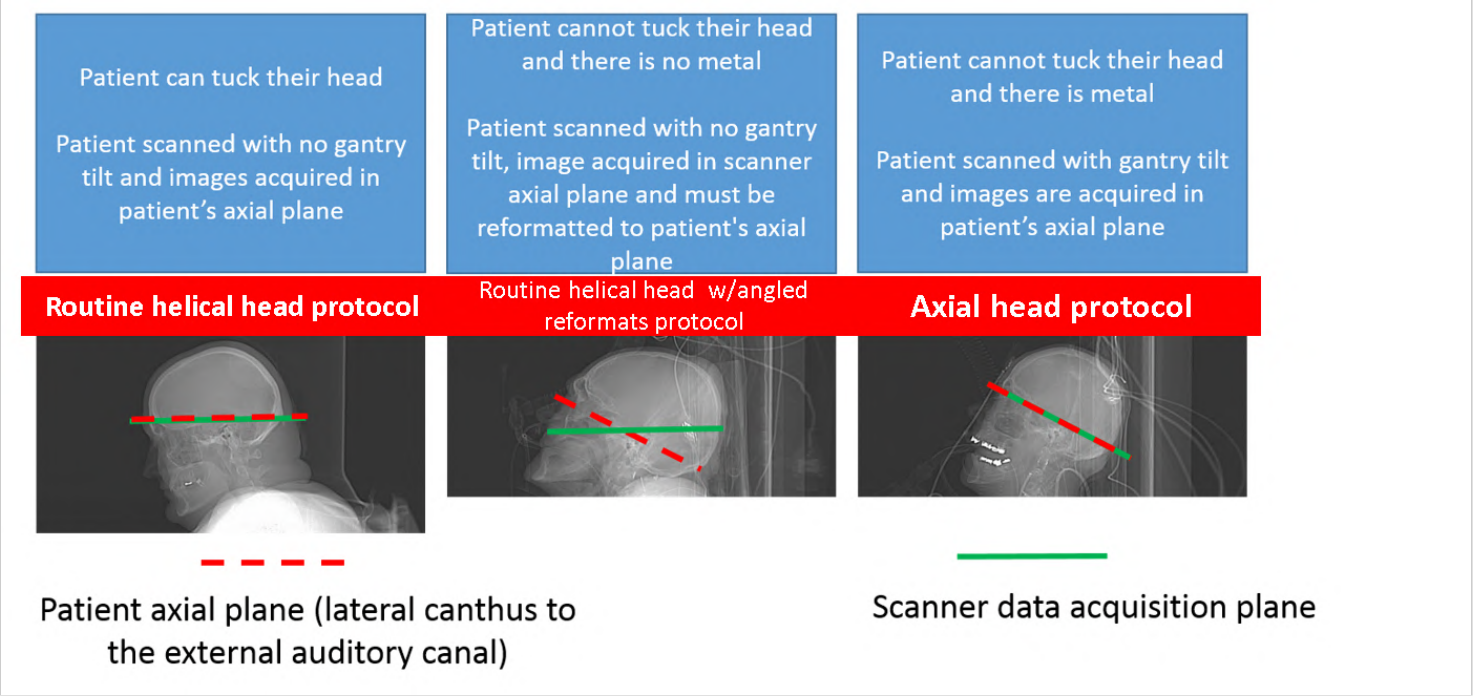
Indication

Mental status change, trauma, stroke, fall, intracranial hemorrhage.

Videos for this protocol

Routine head imaging

Head with contrast



Guidance on choosing the correct version of the routine head protocol

Oral Contrast

None

Pre-Scan Instructions

- Helical mode should be used routinely for head CT scans. Only use axial mode when you cannot move the patient's head into proper position (trauma, cervical collar, rigid neck), AND dental work would cause streak artifact in base of brain.
- Positioning: Tilt the patients head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see below). Use axial mode and angle the gantry if you cannot place the patient's head within 15 degrees of the proper setup angle.

- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adults:

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	2 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	2 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Peds:

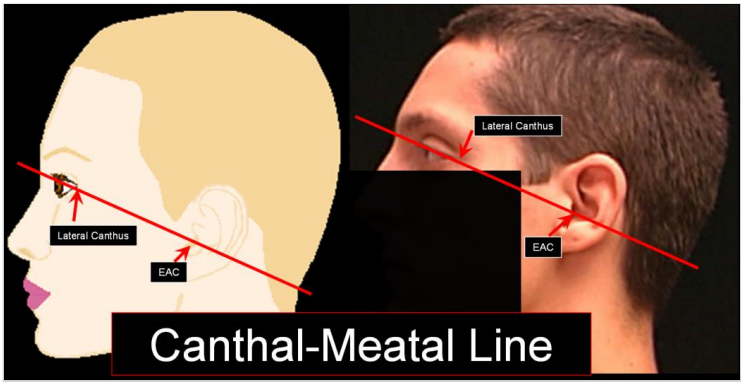
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kg (0-175 lbs)	1.5 mL/kg (0.7 ml/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Field of View

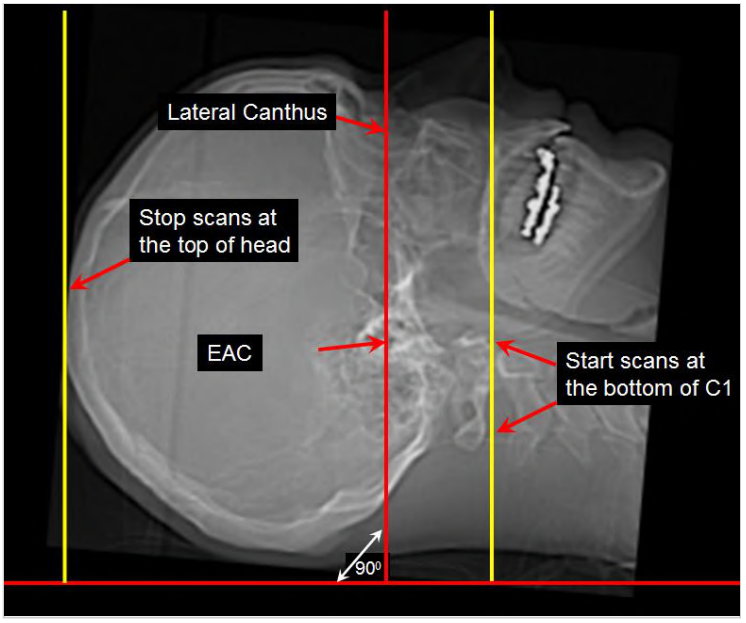
Preferred 22 cm

Scan Description

- Series 1-Scouts PA and Lateral
- Series 2-Scan Phase
  - Scan Range, start scans at the bottom of C1 and scan through the top of the head
  - If Pediatric NAT or Pediatric Trauma, turn on Recon 4 (1.25 mm bone) in order to make the Peds reformats (described in the table below)
  - If CT Head with IV Contrast only is ordered, skip the Head w/o series and use the next series.



Canthal-Meatal Line



Scan range for brain

Reformat Instructions

For Routine CT Head imaging (Adult and Peds): see the general table below.

For NAT and Pediatric Trauma: See the additional Reformat Table AND Perform a 3D.

Reformats

Name (Adult)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL (Adult)	Slice Thickness (mm) (Adult)	Interval (mm) (Adult)	Orientation
CO ST	THIN ST	Manual	Average	180/25	3	1.5	Coronal
SA ST	THIN ST	Manual	Average	180/25	3	1.5	Sagittal

Name (Peds)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL (Peds)	Slice Thickness (mm) (Peds)	Interval (mm) (Peds)	Orientation
CO ST	THIN ST	Manual	Average	150/30	3	1.5	Coronal
SA ST	THIN ST	Manual	Average	150/30	3	1.5	Sagittal

Only for Pediatric NAT/Trauma, also do

Name (Peds NAT/Trauma)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO BONE	THIN BONE	Manual	Average	2500/350	1.25	0.625	Coronal
SA BONE	THIN BONE	Manual	Average	2500/350	1.25	0.625	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**2.9**	**3.0**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-500)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**3.4**	**3.5**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Brain - Helical Scan with Angled Axial Reformations 1.2/11.4/11.5/11.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

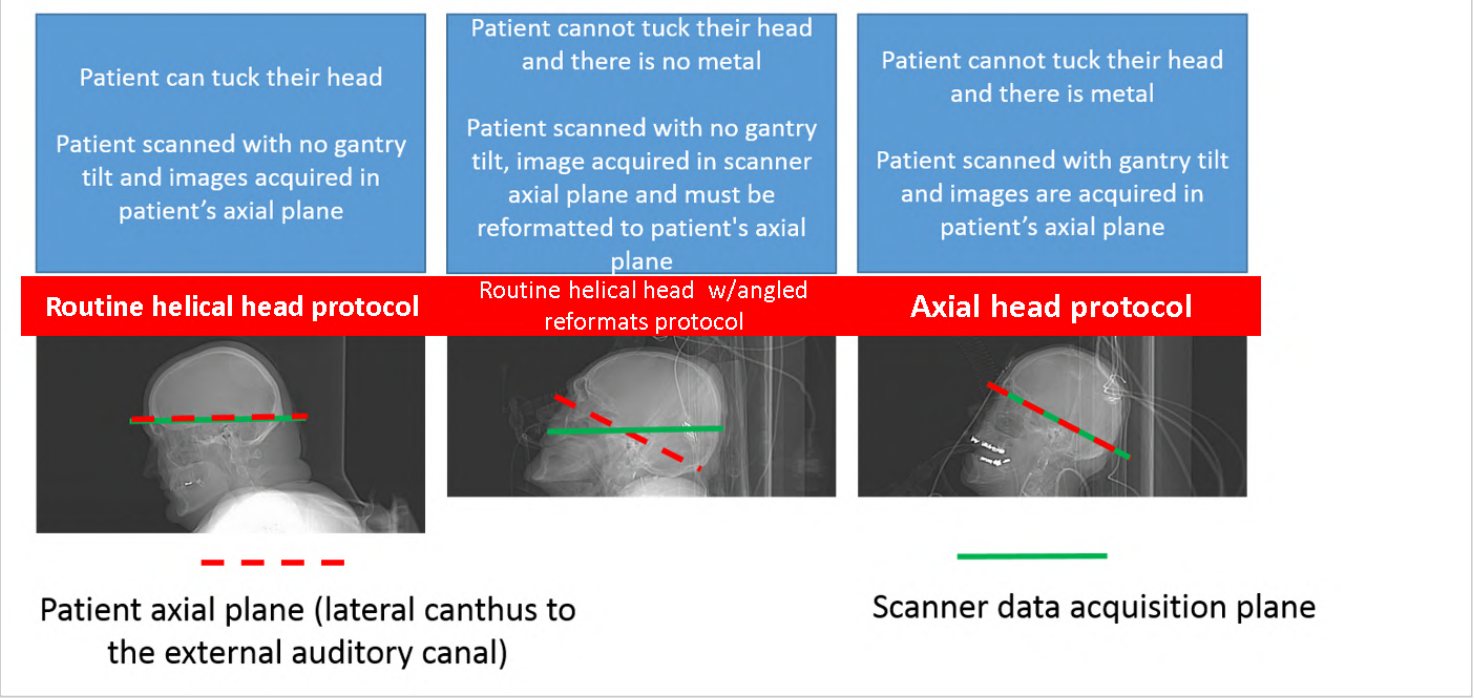
Indication

Mental status change, trauma, stroke, fall, intracranial hemorrhage.

Videos for this protocol

Routine head imaging

Head with contrast



Guidance on choosing the correct version of the routine head protocol

Oral Contrast

None

Pre-Scan Instructions

- Use this protocol when the head cannot be properly positioned for a routine helical head scan. Example: when you cannot move the patient's head into proper position (trauma, cervical collar, rigid neck).
- Important: Be certain that dental filling artifact does not extend across the brain on the helical raw data. If it does, then use the axial mode head protocol instead.
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adults:

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	2 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	2 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Peds:

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kg (0-175 lbs)	1.5 mL/kg (0.7 ml/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Field of View

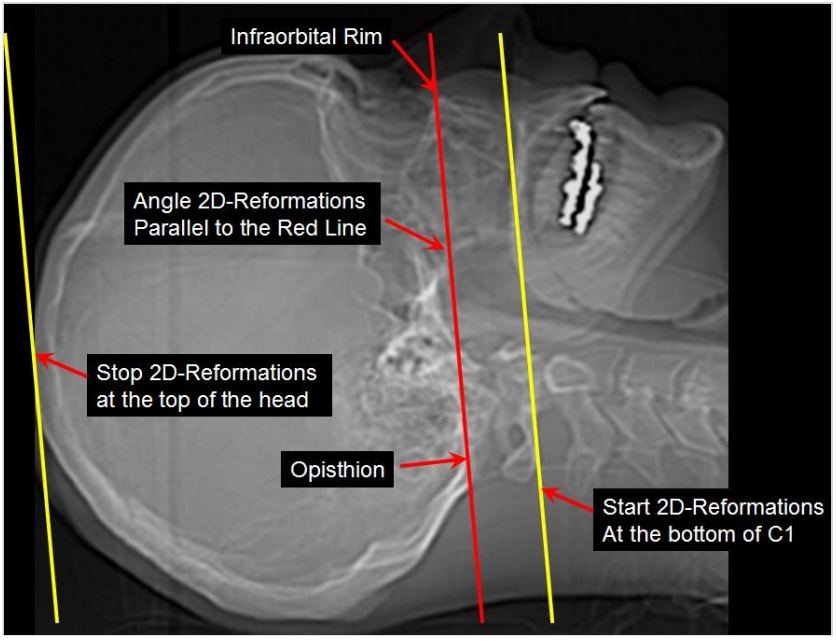
Preferred 22 cm

Scan Description

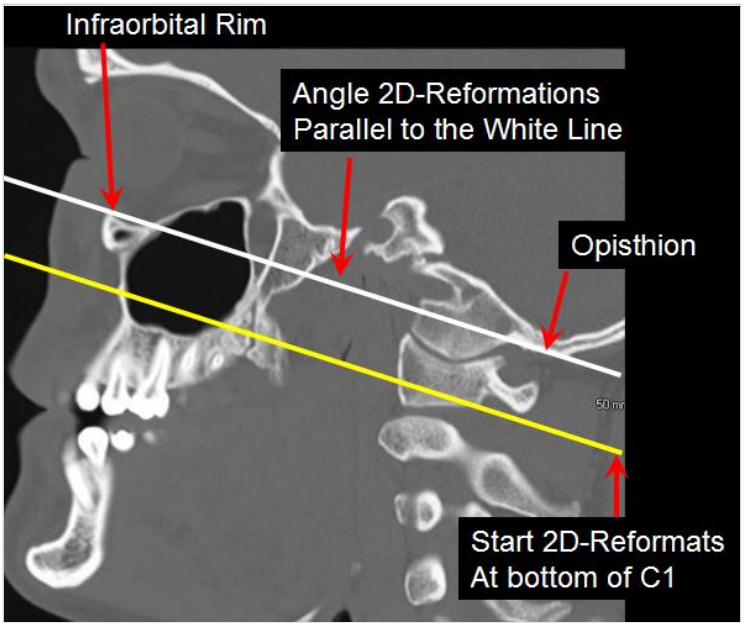
- Series 1 - Scouts PA and Lateral
- Series 2 – Start the scans at C1 and scan through the top of the head

Reformat Instructions

Obtain Axial 2D - reformats parallel to a line connecting the infraorbital rim with the opisthion (base of skull) (See below). Use Multi-oblique tool in reformat to correct for misaligned patient. Then scroll in Sagittal port to locate infraorbital rim and choose proper angle of reconstruction. Align Batch with infraorbital rim and opisthion (base of skull), starting bottom-up. Reset pointer, making sure to re-adjust your multi-oblique lines if necessary.



Helical Scan with Angled Axial Reformations



Helical

Reformats

Name (Adult)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL (Adult)	Slice Thickness (mm) (Adult)	Interval (mm) (Adult)	Orientation
AX ST	THIN ST	Manual	Average	80/25	5	2.5	Axial
AX BONE	THIN BONE	Manual	Average	2500/350	2.5	1.25	Axial
CO ST	THIN ST	Manual	Average	180/25	3	1.5	Coronal
SA ST	THIN ST	Manual	Average	180/25	3	1.5	Sagittal

Name (Peds)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL (Peds)	Slice Thickness (mm) (Peds)	Interval (mm) (Peds)	Orientation
AX ST	THIN ST	Manual	Average	80/25	5	2.5	Axial
AX BONE	BONE	Manual	Average	2500/350	2.5	1.25	Axial
CO ST	THIN ST	Manual	Average	180/25	3	1.5	Coronal
SA ST	THIN ST	Manual	Average	180/25	3	1.5	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**5.8**	**6.0**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-580)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**6.8**	**7.1**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Brain Post Thrombolysis Helical (GSI) 1.4/11.28/11.29/11.30

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

To be scanned within 24 hours of endovascular thrombolysis, evaluating for contrast staining versus hemorrhage.

Oral Contrast

None

Pre-Scan Instructions

- Positioning: Tilt the patients head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see below).
- **Do not scan patient on the table top, it will cause artifacts**.
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

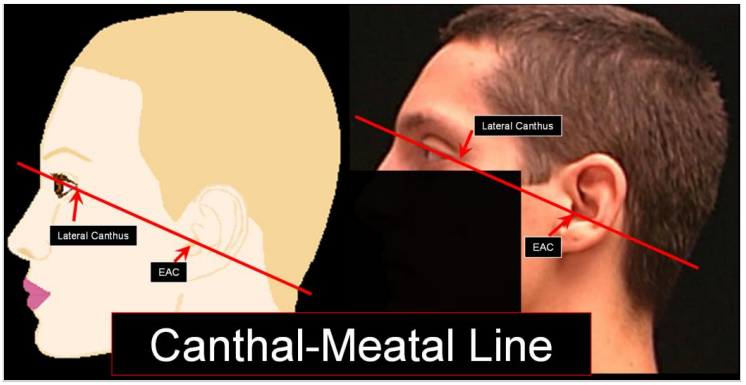
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	2 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	2 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Field of View

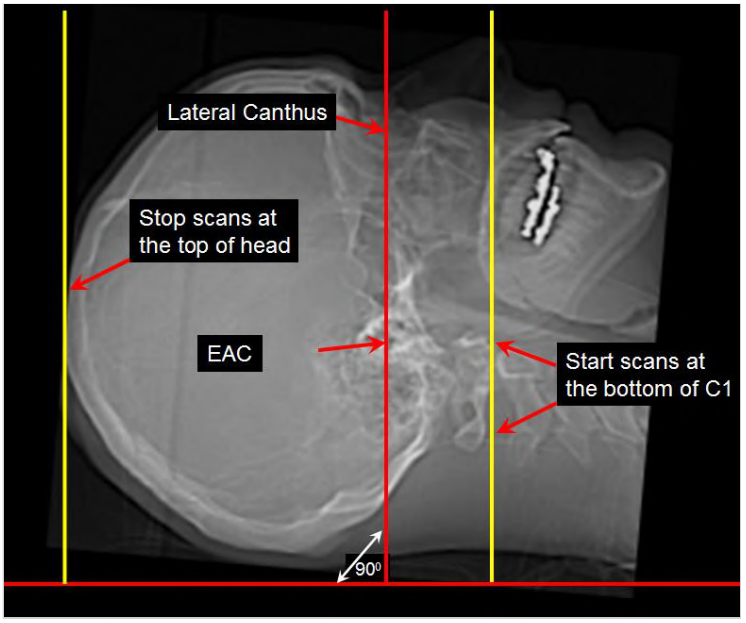
Preferred 22 cm

Scan Description

- Series 1-Scouts PA and Lateral
- Series 2-Scan Phase
    - Scan Range, start scans at the bottom of C1 and scan through the top of the head



Canthal-Meatal Line



scan range for brain

Reformat Instructions

Please obtain 3x1.5 coronal and sagittal reformats off the THIN ST series.

Reformats

Name (Adult)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL (Adult)	Slice Thickness (mm) (Adult)	Interval (mm) (Adult)	Orientation
CO ST	THIN ST	Manual	Average	180/25	3	1.5	Coronal
SA ST	THIN ST	Manual	Average	180/25	3	1.5	Sagittal

Networking

- Send the QC and Recon 2 images to Thin PACS (ALI_Source).
- Send Recon 3 and 4 to PACS (ALI_Store).
- Send the Reformats, Scouts, and Dose Report to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Infant	Child	Adult and Adolescent
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**20**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Infant	Child	Adult and Adolescent
GSI Mode	**On**	**On**	**On**
GSI Profile	**GE Head CTA**	**GE Head CTA**	**GE Head NC**
AEC Mode	**Manual**	**Manual**	**Manual**
NI	**N/A**	**N/A**	**N/A**
mA	**365**	**365**	**315**
Scan Type	**Helical**	**Helical**	**Helical**
Rotation Time	**0.50**	**0.50**	**0.80**
Collimation (mm)	**40**	**40**	**40**
Pitch	**0.516**	**0.516**	**0.516**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3**	**3**	**3**

Series 2, Recons

	Infant	Child	Adult and Adolescent
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30/10%**	**30/10%**	**30/10%**
GSI	**kVp-Like-120 kVp**	**kVp-Like-120 kVp**	**kVp-Like-120 kVp**
Slice Thickness (mm)	**5.0**	**5**	**5**
Interval (mm)	**3.0**	**3**	**3**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30/10%**	**30/10%**	**30/10%**
GSI	**Mono-67 keV GSI Data File - MARS On**	**Mono-67 keV GSI Data File - MARS On**	**Mono-67 keV GSI Data File - MARS On**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3**	**3**	**3**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**0%**	**0%**	**0%**
GSI	**Mono-67 keV GSI Data File - MARS On**	**Mono-67 keV GSI Data File - MARS On**	**Mono-67 keV GSI Data File - MARS On**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Recon 4 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30/10%**	**30/10%**	**30/10%**
GSI	**Mono-67 keV GSI Data File - MARS On**	**Mono-67 keV GSI Data File - MARS On**	**Mono-67 keV GSI Data File - MARS On**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 5 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**300/1000**	**300/1000**	**300/1000**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**10%**	**10%**	**10%**
GSI	**Matl Density-Water(I)-MARs On**	**Matl Density-Water(I)-MARs On**	**Matl Density-Water(I)-MARs On**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3**	**3**	**3**
Recon 6 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**150/50**	**150/50**	**150/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**10%**	**10%**	**10%**
GSI	**Matl Density-Iodine(H2O)-MARs On**	**Matl Density-Iodine(H2O)-MARs On**	**Matl Density-Iodine(H2O)-MARs On**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3**	**3**	**3**

3D CT (Craniosynostosis, Congenital Facial Anomaly) 1.5/11.10/11.11/11.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Craniosynostosis, Cleft lip, Cleft Palate, septo-optic dysplasia

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- Remove all metallic and high-density objects from the scanning area.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus and the EAC is perpendicular to the CT tabletop. (see head CT protocol)

IV Contrast Parameters

Only done without contrast.

Field of View

Preferred 22 cm (Must include the entire head, face, and mandible)

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – Crainio: Start just below the mandible and scan all the way through the top of the head (Get 1-2 air scans above the head and below the chin to allow the 3D program to show the entire head and mandible without artifacts)

Reformat Instructions

No reformats unless requested by a Radiologist

Reformats

None.

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)

- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**2.9**	**3.0**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Stroke Deluxe – Total Cerebrovascular 1.6/11.16/11.17/11.18

If you get an order for Perfusion only, please still scan the Without contrast and With contrast Head along with the Perfusion. Skip the CTA Head/Neck series.

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Stroke, mental status change, dissection, arterial embolism

Videos for this protocol

Stroke Deluxe

Perfusion

Oral Contrast

None

Pre-Scan Instructions

- Start an 18g right sided IV. If it is a stroke code and an IV is already placed, please do not re-stick the patient.
- Extend the scouts to include the aortic arch for smart prep.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adult CTA

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
200-300 lbs (90-136 kg)	100 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
>300 lbs (>136 kg)	120 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec

Pediatrics CTA

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1 mL/kg (~0.5mL/lb) of Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	2 mL/sec

Neuro Adult CTA Perfusion Phase

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	40 mL of Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	50 mL of Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	5.5 mL/sec
>300 lbs (>136 kg)	50 mL of Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	5.5 mL/sec

Neuro Pediatric CTA Perfusion Phase

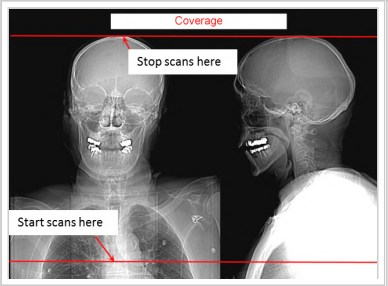
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	0.5 mL/kg (~0.25mL/lb) Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	3- 4 mL/sec
Administer Contrast Dose according to patient's weight in kg whenever possible.		
Injection Rate variable, depending on the size of patient and IV guage.		

Field of View

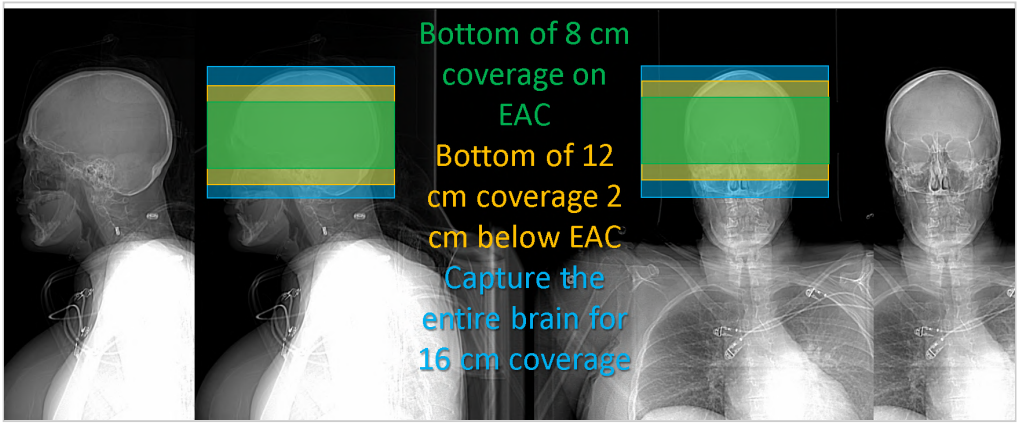
Preferred 22 cm

Scan Description

- **Series 1** – Scouts PA and Lateral
- **Series 2** – Routine CT Head without contrast (Helical)
- **Series 3** - CTA Head and Neck: Scan from bottom of carina to the top of head (bottom up)
  - Smart Prep: Aortic arch (initiate the scan at contrast entry)



- **Series 4** – CT Perfusion
  - Coverage - Bottom of scan range should start at the EAC (if doing cine, see perfusion levels in the supplemental perfusion information)
  - If a stroke code: Wait 30 seconds after CTA to begin perfusion (see perfusion page for details)
  - If a non emergent case: Wait 5 minutes after CTA to begin perfusion (see perfusion page for details)
- **Series 5** – Routine Head With contrast (Helical): Must be done AFTER perfusion, but can start immediately after perfusion.
  - If your site does not perform perfusion, this scan phase must be completed 30 seconds after the end of the CTA phase.



Perfusion Coverage Guidance. If a "whole brain" coverage is ordered, use the 16 cm coverage. Note, on non Rev256 scanners, you will only have 8 cm of coverage (i.e. shuttle mode). All three protocols will have the same scan time, approximately 60 seconds. 80 mm coverage = 352 images, 120 mm coverage = 528 images and 160 mm coverage = 704 images.

Reformat Instructions

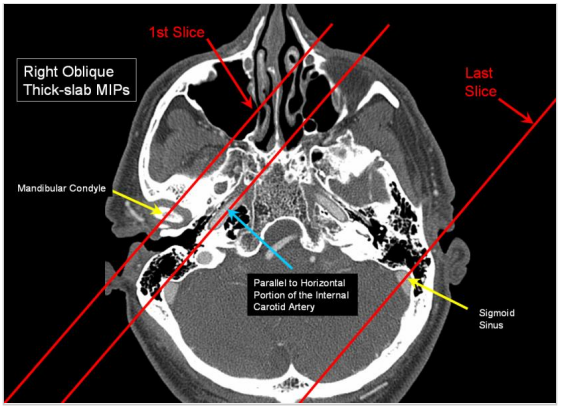
Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

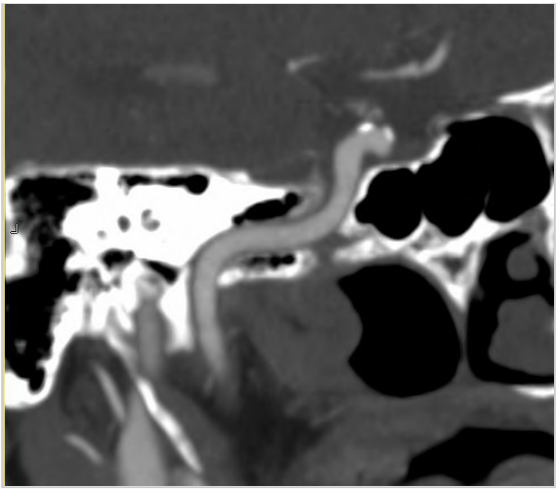
Thin MIP 2D-Reformations through the vertebral and carotid arteries

- Make sure the reference line is parallel to the carotid canal (see image below)
- Axial images to use for obtaining the oblique sagittal 2-D Reformations
- Use a DFOV of 10

Send to ALI Store (PACS)



Where to take reformats



What reformats should look like

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
RT OBL	Thin ST	Manual	MIP	800/200	1	1	Axial
LT OBL	Thin ST	Manual	MIP	800/200	1	1	Axial

2D Thick-Slab MIP Reformats of Head

- Do axial, sagittal, and coronal thick-slab MIPs through the entire head. (See examples below)

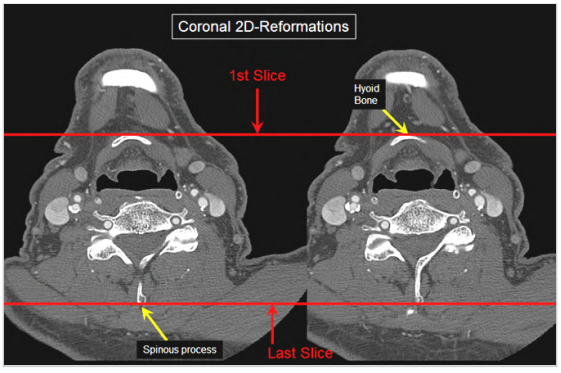
Send to ALI Store (PACS).

What reformats should look like

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin ST	Manual	MIP	600/200	10	2.5	axial
SA	Thin ST	Manual	MIP	600/200	10	2.5	sagittal
CO	Thin ST	Manual	MIP	600/200	10	2.5	coronal

2D MIP-Reformations through the vertebral and carotid arteries

- Use an axial image near the level of the hyoid bone at the carotid bifurcation to prescribe the correct oblique angles. Use an image that shows the external and internal carotid arteries.
- Choose only the axial images from the aortic arch to the EAC.
- Include both the carotid and vertebral arteries (See example below)
- Send all images to ALI Store(PACS).



Coronal and Sagittal 2D- MIP Reformats
Through Carotid Bifurcations

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	Thin ST	Manual	MIP	800/200	10	2.5	sagittal
CO	Thin ST	Manual	MIP	800/200	10	2.5	coronal
SA ST	Thin ST	Manual	Average	300/35	3	1.5	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Perfusion is set up to auto send to RAPID (outside facilities send to your own stroke processing software solution).
- Do not wait until the end of the exam to start sending images to PACS if the case is emergent, please send images as you create them to get the stroke care team images asap.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**2.9**	**3.0**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Adult and Adolescent	Child	Infant
mA	**80**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3.0**	**3.0**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.8**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-740)**	**(150-630)**	**(130-550)**
Manual mA	**460.0**	**400.0**	**350.0**
Noise Index	**8.4**	**8.7**	**7.4**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2/MARS on**	**EC2/MARS on**	**EC2/MARS on**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 4, Perfusion

Perfusion Details can be found on the perfusion appendix page

Series 5, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-500)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**3.4**	**3.5**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 5, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

CTA Head Only (Stenosis, Aneurysm, Unknown Bleed) 1.7/11.19/11.20/11.21

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Stenosis, Aneurysm, Unknown Bleed

Videos for this protocol

CTA Head and Neck

Perfusion

Oral Contrast

None

Pre-Scan Instructions

- Start an 18g right sided IV. If it is a stroke code and an IV is already placed, please do not re-stick the patient.
- Extend the scouts to include the aortic arch for smart prep.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adult CTA

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
200-300 lbs (90-136 kg)	100 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
>300 lbs (>136 kg)	120 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec

Pediatrics CTA

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1 mL/kg (~0.5mL/lb) of Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	2 mL/sec

Neuro Adult CTA Perfusion Phase

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	40 mL of Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	50 mL of Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	5.5 mL/sec
>300 lbs (>136 kg)	50 mL of Iopamidol 370 mgI/mL (Isovue) + 30 mL NaCl flush	5.5 mL/sec

Neuro Pediatric CTA Perfusion Phase

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	0.5 mL/kg (~0.25mL/lb) Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	3- 4 mL/sec
Administer Contrast Dose according to patient's weight in kg whenever possible.		
Injection Rate variable, depending on the size of patient and IV guage.		

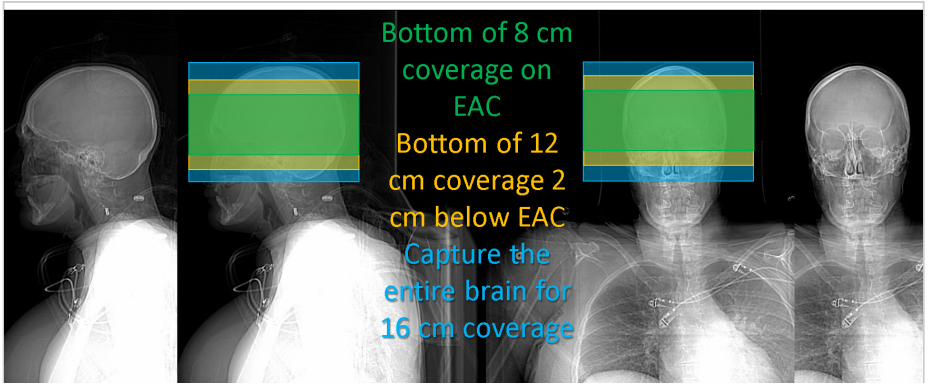
Field of View

Preferred 22 cm

Scan Description

- **Series 1** – Scouts PA and Lateral
- **Series 2** – Routine CT Head without contrast (Helical)
- **Series 3** - CTA Head Only: Scan from bottom of C2 to the top of head (bottom up)
  - Smart Prep: Aortic arch (initiate the scan at contrast entry)

- **Series 4** – Coverage - Bottom of scan range should start at the EAC (if doing cine, see perfusion levels in the supplemental perfusion information)
  - If a stroke code: Wait 30 seconds after CTA to begin perfusion (see perfusion page for details)
  - If a non emergent case: Wait 5 minutes after CTA to begin perfusion (see perfusion page for details)
- **Series 5** – Routine Head With contrast (Helical): Must be done AFTER perfusion.
  - If a stroke code: Scan immediately after perfusion.
  - If No perfusion is scanned: Scan 30 seconds after the CTA series.



Perfusion Coverage Guidance. If a "whole brain" coverage is ordered, use the 16 cm coverage. Note, on non Rev256 scanners, you will only have 8 cm of coverage (i.e. shuttle mode).

Reformat Instructions

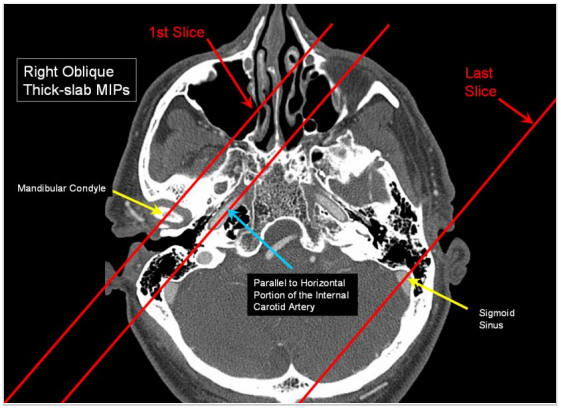
Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

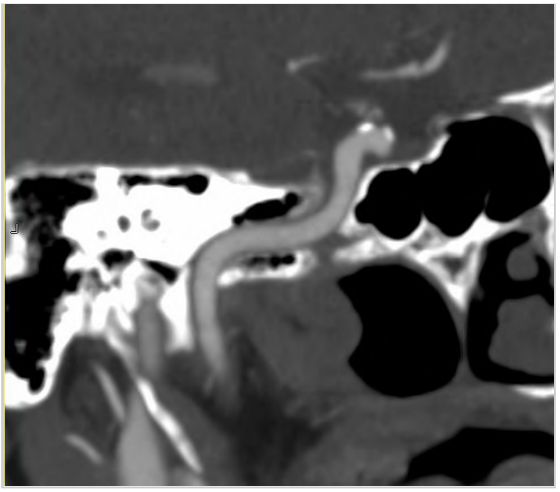
Thin MIP 2D-Reformations through the vertebral and carotid arteries

- Make sure the reference line is parallel to the carotid canal (see image below)
- Axial images to use for obtaining the oblique sagittal 2-D Reformations
- Use a DFOV of 10

Send to ALI Store (PACS)



Where to take reformats



What reformats should look like

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
RT OBL	Thin ST	Manual	MIP	800/200	1	1	Axial
LT OBL	Thin ST	Manual	MIP	800/200	1	1	Axial

2D Thick-Slab MIP Reformats of Head

Do axial, sagittal, and coronal thick-slab MIPs through the entire head. (See examples below)

Send to ALI Store (PACS).

What reformats should look like

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin ST	Manual	MIP	600/200	10	2.5	axial
SA	Thin ST	Manual	MIP	600/200	10	2.5	sagittal
CO	Thin ST	Manual	MIP	600/200	10	2.5	coronal

Networking

- All Images to PACS (ALI_Store).
- Perfusion is set up to auto send to RAPID (outside facilities send to your own stroke processing software solution).

- Do not wait until the end of the exam to start sending images to PACS if the case is emergent, please send images as you create them to get the stroke care team images asap.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**2.9**	**3.0**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Adult and Adolescent	Child	Infant
mA	**80**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3.0**	**3.0**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-580)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**6.8**	**7.1**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2/MARS on**	**EC2/MARS on**	**EC2/MARS on**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 4, Perfusion

Perfusion Details can be found on the perfusion appendix page

Series 4, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**350/20**	**350/20**	**350/20**
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**40**	**40**	**40**

Series 5, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-500)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**3.4**	**3.5**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 5, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

CT Venography Head & Neck 1.9/11.25/11.26/11.27

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Venous Sinus Thrombosis

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adult

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL + 50 ml NaCl flush	3.8 mL/sec
200-300 lbs (90-136 kg)	145 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4.5 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	5 mL/sec

Pediatrics

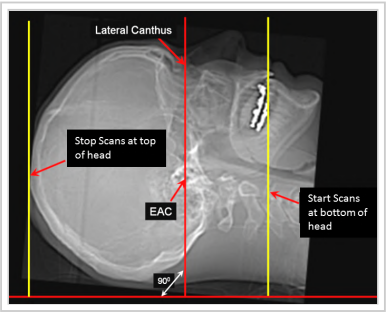
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) Iohexol 300 mgI/mLs 25 mL NaCl flush	Contrast: 2 mL/s NaCl flush: 1.5 mL/s

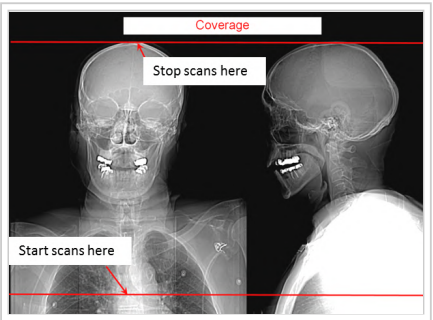
Field of View

Preferred 22 cm

Scan Description

- **Series 1** – Scouts PA and Lateral
- **Series 2** – Routine CT Head without contrast (Helical)
- **Series 3** - CTV Head Only -OR- CTV Head and Neck
- CTV Head Only: Scan from bottom of C2 to the top of head (bottom up)
- CTV Head and Neck: Scan from carina to top of head (bottom up)
  - Timing: There is an additional 7 second diagnostic delay built into the smart prep.
  - Smart Prep: Place ROI on aortic arch





- **Series 4** – Routine Head With contrast (Helical): Wait at least 5 min from start of CTV contrast injection before beginning scan.

Reformat Instructions

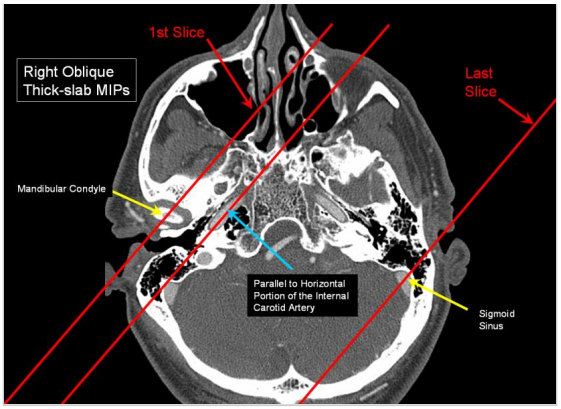
Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

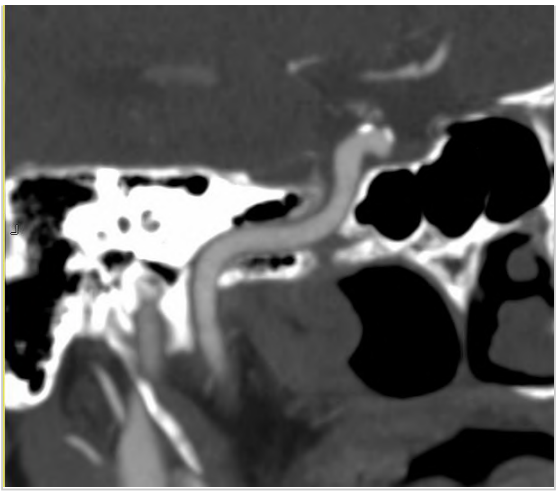
Thin MIP 2D-Reformations through the vertebral and carotid arteries

- Make sure the reference line is parallel to the carotid canal (see image below)
- Axial images to use for obtaining the oblique sagittal 2-D Reformations
- Use a DFOV of 10

Send to ALI Store (PACS)



Where to take reformats



What reformats should look like

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
RT OBL	Thin ST	Manual	MIP	800/200	1	1	Axial
LT OBL	Thin ST	Manual	MIP	800/200	1	1	Axial

2D Thick-Slab MIP Reformats of Head

- Do axial, sagittal, and coronal thick-slab MIPs through the entire head. (See examples below)

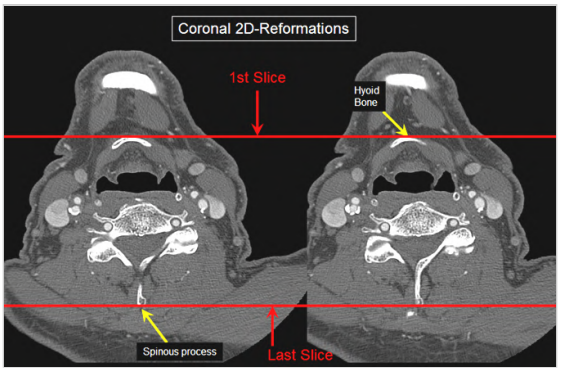
Send to ALI Store (PACS).

What reformats should look like

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin ST	Manual	MIP	600/200	10	2.5	axial
SA	Thin ST	Manual	MIP	600/200	10	2.5	sagittal
CO	Thin ST	Manual	MIP	600/200	10	2.5	coronal

2D MIP-Reformations through the vertebral and carotid arteries

- Use an axial image near the level of the hyoid bone at the carotid bifurcation to prescribe the correct oblique angles. Use an image that shows the external and internal carotid arteries.
- Choose only the axial images from the aortic arch to the EAC.
- Include both the carotid and vertebral arteries (See example below)
- Send all images to ALI Store(PACS).



Coronal and Sagittal 2D- MIP Reformats
Through Carotid Bifurcations

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	Thin ST	Manual	MIP	800/200	10	2.5	sagittal
CO	Thin ST	Manual	MIP	800/200	10	2.5	coronal
SA ST	Thin ST	Manual	Average	300/35	3	1.5	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	120	100	80
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	120	100	80
Scout 2 mA	20	20	20
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**2.9**	**3.0**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Adult and Adolescent	Child	Infant
mA	**80**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3.0**	**3.0**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**7**	**7**	**7**

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.8**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-740)**	**(150-630)**	**(130-550)**
Manual mA	**460.0**	**400.0**	**350.0**
Noise Index	**8.4**	**8.7**	**7.4**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2/MARS on**	**EC2/MARS on**	**EC2/MARS on**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead

of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 4, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-500)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**3.4**	**3.5**	**3.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 4, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

Stealth - Stereotactic Head (Whole Brain Treatment Planning) 1.10/11.13/11.14/11.15

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Stereotactic guidance imaging for use in the Operating Room.

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine in Stealth Head Holder. If your site does not have a Stealth Head holder, next best option is table-top, use the Head Holder only if patient cannot hold still.
- Remove all metallic and high-density objects from the scanning area.
- Be sure to include the Entire nose.
- Have the patient close their eyes for the scan.
- No gantry angle.
- Using the lasers, line up patient so that the canthomeatal line is perpendicular to the CT table. This may require you to tilt the patients head either up or down slightly.

Stealth Head Holder

IV Contrast Parameters

Adults:

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	2 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	2 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Peds:

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kg (0-175 lbs)	1.5 mL/kg (0.7 ml/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Begin scanning 5 minutes after end of injection (~6 minutes from start of injection)		

Field of View

Preferred 22 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 - Stereotactic Head: Scan from the hard palate to the top of the head: Be sure to include the entire nose.

Reformat Instructions

No special reformat instructions, see the reformat section for basic details.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX ST	ST	Manual	Average	80/25	3	1.5	Axial
CO ST	ST	Manual	Average	80/25	3	1.5	Coronal
SA ST	ST	Manual	Average	80/25	3	1.5	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

If there is ANY patient motion, start the scan over.

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	120	100	80
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	120	100	80
Scout 2 mA	20	20	20
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Head**	**Head**	**Head**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**80.00**	**80.00**	**80.00**
Rotation Time (s)	**1**	**0.5**	**0.5**
kV	**120**	**120**	**120**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(210-620)**	**(210-620)**	**(210-620)**
Manual mA	**330**	**330**	**330**
Noise Index	**9.0**	**12.5**	**12.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**10**	**10**	**10**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**10**	**10**	**10**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**N/A**	**N/A**	**N/A**

Orbit - Routine 2.1/12.1/12.2/12.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Orbital Mass, Foreign Body, Trauma, Orbital / Periorbital cellulitis, proptosis

Oral Contrast

None

Pre-Scan Instructions

- Patient Positioning: Tilt the patients head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol). You may need to put a foam pad under the occiput to get the head in this position.
- Ask the patient to look straight ahead and hold their eyes in a very still position.

IV Contrast Parameters

Adults

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	3 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	3 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	3 mL/sec
Delay for Adults: (7 Yrs and Up) 60 sec after start of injection		

Pediatrics

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Delay for Pediatrics: (Ages 0-6 Yrs) 45 sec after start of injection		

Field of View

Preferred 16cm

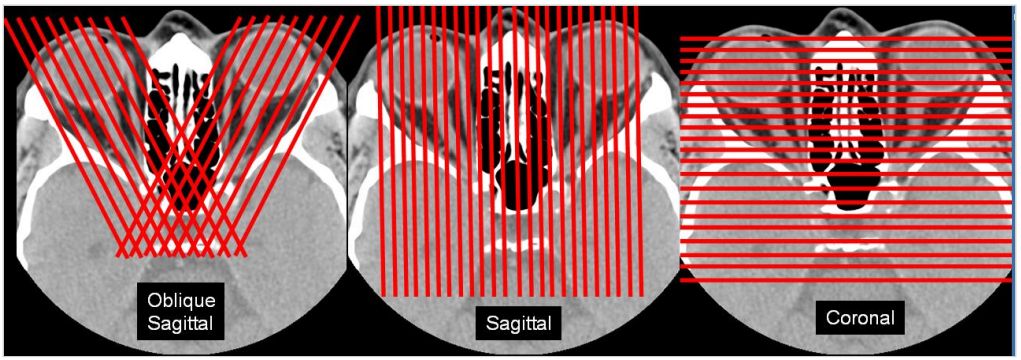
Scan Description

- Series 1 - Scouts PA and Lateral
- Series 2 – CT Orbit Without: Start the scans at the infraorbital rim and scan through the top of the orbit.
- Series 3 - CT Orbit With: Start the scans at the infraorbital rim and scan through the top of the orbit.
  - (If Indicated by protocol for Contrast) Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection. These Prep Delays are built into the protocols.

Reformat Instructions

- All 2-D reformats described below are to be done as 2 mm x 1 mm reformats. Do them in the coronal, sagittal, and bilateral oblique sagittal planes as shown in the image below.
- If this is an exam solely With contrast or solely Without contrast: Please perform 2D-reformats using both the ST AND the THIN BONE.
- If this is a “With & Without” contrast study: Please perform 2D reformats using ST from the With contrast series and THIN BONE from Non-Contrast series.

- Do not send the 0.625 mm bone images to PACS.



Orbit

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST	Manual	Average	300/0	2	1	Coronal
CO BONE	THIN BONE	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST	Manual	Average	300/0	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	2500/350	2	1	Sagittal
RT OBL	THIN ST	Manual	Average	300/0	2	1	Oblique
RT OBL	THIN BONE	Manual	Average	2500/350	2	1	Oblique
LT OBL	THIN ST	Manual	Average	300/0	2	1	Oblique
LT OBL	THIN BONE	Manual	Average	2500/350	2	1	Oblique

With and Without Contrast (SOFT TISSUE reformats are made from the with contrast phase, BONE reformats are made from the without contrast phase)

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	300/0	2	1	Coronal
CO BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	300/0	2	1	Sagittal
SA BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Sagittal
RT OBL	THIN ST (with contrast phase)	Manual	Average	300/0	2	1	Oblique
RT OBL	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Oblique
LT OBL	THIN ST (with contrast phase)	Manual	Average	300/0	2	1	Oblique
LT OBL	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Oblique

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**5.8**	**6.0**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**18**	**16**	**16**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/0**	**300/0**	**300/0**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**18**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**18**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

Series 3, Scan Phase

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-580)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**6.8**	**7.1**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**18**	**16**	**16**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/0**	**300/0**	**300/0**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**18**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**18**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Facial Trauma - Routine 2.5/12.7/12.8/12.9

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Facial Trauma / Reconstruction, Maxillofacial surgery follow-up

Oral Contrast

None

Pre-Scan Instructions

- Remove all metallic and high-density objects from the scanning area.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus and the EAC is perpendicular to the CT tabletop (see head CT protocol).

IV Contrast Parameters

Adults

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	3 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	3 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	3 mL/sec
Delay for Adults: (7 Yrs and Up) 60 sec after start of injection		

Pediatrics

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Delay for Pediatrics: (Ages 0-6 Yrs) 45 sec after start of injection		

Field of View

Preferred 16cm

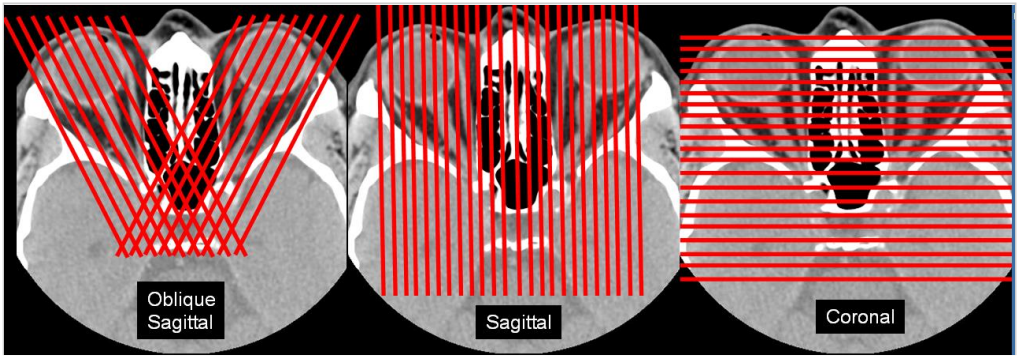
Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – Facial Trauma Without Contrast: Start just below the mandible to the top of the frontal sinuses.
- Series 3 - Facial Trauma With Contrast: Start just below the mandible to the top of the frontal sinuses.
  - (If Indicated to do with contrast) Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection. These Prep Delays are built into the protocol.

Reformat Instructions

- All 2-D reformats described below are to be done as 2 mm x 1 mm reformats as shown in the image below
  - Oblique Sagittal: Through each orbit parallel to the optic nerves.
  - Sagittal: Through both orbits. Be sure to include both TMJs.
  - Coronal: From the anterior aspect of the superior orbital rim through the sella. Be sure to include all of the TMJ.
- If this is an exam solely With contrast or solely Without contrast: Please perform 2D-reformats using both the ST AND the THIN BONE.

- If this is a “With & Without” contrast study: Please perform 2D reformats using ST from the With contrast series and THIN BONE from Non-Contrast series.



Orbit

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST	Manual	Average	400/50	2	1	Coronal
CO BONE	THIN BONE	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST	Manual	Average	400/50	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	2500/350	2	1	Sagittal
RT OBL	THIN ST	Manual	Average	400/50	2	1	Oblique
RT OBL	THIN BONE	Manual	Average	2500/350	2	1	Oblique
LT OBL	THIN ST	Manual	Average	400/50	2	1	Oblique
LT OBL	THIN BONE	Manual	Average	2500/350	2	1	Oblique

With and Without Contrast (SOFT TISSUE reformats are made from the with contrast phase, BONE reformats are made from the without contrast phase)

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	400/50	2	1	Coronal
CO BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	400/50	2	1	Sagittal
SA BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Sagittal
RT OBL	THIN ST (with contrast phase)	Manual	Average	400/50	2	1	Oblique
RT OBL	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Oblique
LT OBL	THIN ST (with contrast phase)	Manual	Average	400/50	2	1	Oblique
LT OBL	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Oblique

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	**120**	**100**	**80**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**100**	**80**
Scout 2 mA	**20**	**20**	**20**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**1**	**0.8**	**0.5**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-290)**	**(100-360)**	**(170-570)**
Manual mA	**140.0**	**170.0**	**270.0**
Noise Index	**5.8**	**6.0**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

When on a Revolution 256 model scanner, we recommend switching the boneplus kernel to ULTRA.

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**18**	**18**	**18**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**18**	**18**	**18**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**18**	**18**	**18**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.5**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-590)**	**(150-580)**	**(170-570)**
Manual mA	**290.0**	**250.0**	**270.0**
Noise Index	**6.8**	**7.1**	**6.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

When on a Revolution 256 model scanner, we recommend switching the boneplus kernel to ULTRA.

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**18**	**18**	**18**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**18**	**18**	**18**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**18**	**18**	**18**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Pituitary Gland and Cavernous Sinus 2.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Pituitary Macroadenoma, Pituitary Mass, Hypogonadism, Hyperprolactinemia, Cavernous sinus mass, suprasellar mass

Oral Contrast

None

Pre-Scan Instructions

- Remove all metallic and high-density objects from the scanning area.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see below).

IV Contrast Parameters

Adults

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	3 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	3 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	3 mL/sec
Delay for Adults: (7 Yrs and Up) 60 sec after start of injection		

Pediatrics

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Delay for Pediatrics: (Ages 0-6 Yrs) 45 sec after start of injection		

Field of View

- Head: Preferred 22 cm
- Pituitary: 14 cm

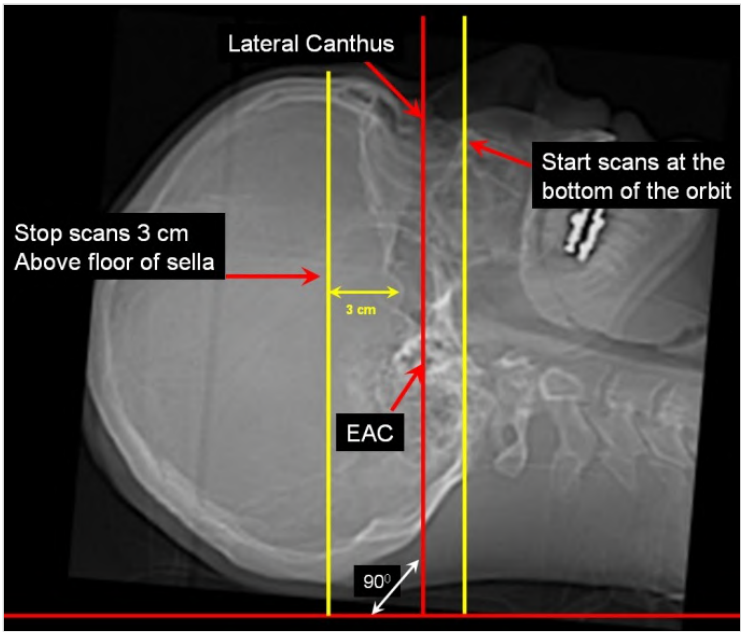
Scan Description

- Part 1: CT Head WO Contrast
  - Series 1 - Scouts PA and Lateral
  - Series 2 - CT Head Without: Start scans at the bottom of C1 and scan through the top of the head

- Part 2: Pituitary CT with Contrast
  - Series 3
    - Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection
    - Pituitary CT with Contrast (as outlined below)
      - Use a DFOV of approximately 14 cm (include the orbit and sella)
      - Perform helical axial scans starting at the bottom of the orbit to 3 cm above the floor of the sella.

- Part 3: CT Head With Contrast

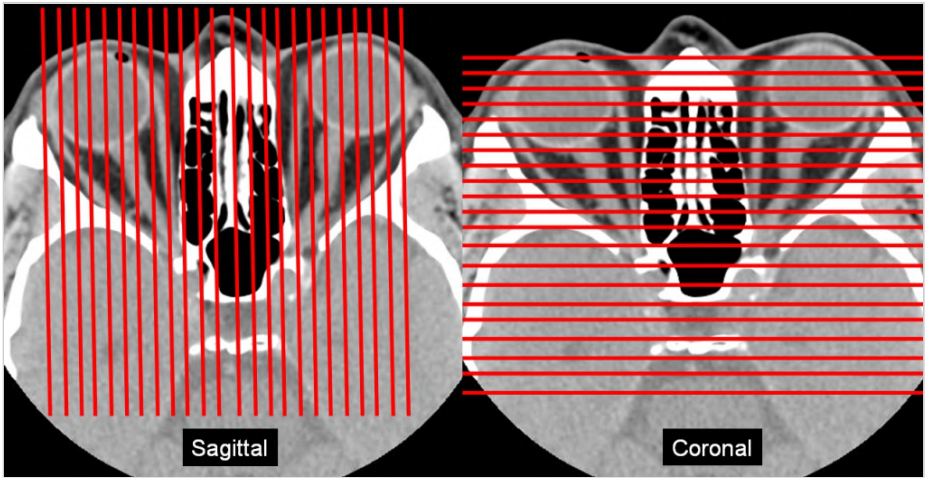
- Series 4 – CT Head With Contrast(Start when all contrast is injected): Start scans at the bottom of C1 and scan through the top of the head



scan range for pituitary

Reformat Instructions

Do 2 mm x 1 mm 2D-reformats using both the THIN ST images AND the THIN BONE images as outlined below.



Sagittal and Coronal

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA ST	THIN ST	Manual	Average	180/25	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	2500/350	2	1	Sagittal
CO ST	THIN ST	Manual	Average	180/25	2	1	Coronal
CO BONE	THIN BONE	Manual	Average	2500/350	2	1	Coronal

Networking

- Send all images to PACS including the Thin Bone in the Pituitary Series.

- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Adult
Scout 1 kV	**120**
Scout 1 mA	**10**
Scout 1 Angle	**180**
Scout 2 kV	**120**
Scout 2 mA	**20**
Scout 2 Angle	**90**
WW/WL for Scout	**500/50**

Series 2, Scan Phase

	Adult
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Head**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**1**
kV	**120**
AEC type	**smart mA**
mA Range	**(80-290)**
Manual mA	**140.0**
Noise Index	**2.9**
Slice Thickness (mm)	**5**
Interval (mm)	**3.0**

Series 2, Recons

	Adult
Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Soft**
WW/WL	**80/25**
Recon Option	**Plus**
Recon Option	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**
Interval (mm)	**3.0**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**
Recon 3 (Secondary)	
DFOV	**22**
Recon Type	**Soft**
WW/WL	**180/25**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

Series 3, Scan Phase

	Adult
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Head**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**100**
AEC type	**smart mA**
mA Range	**(170-590)**
Manual mA	**290.0**
Noise Index	**6.8**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

Series 3, Recons

	Adult
Recon 1 (Primary)	
DFOV	**14**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**
Recon 2 (Secondary)	
DFOV	**14**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Series 4, Scan Phase

	Adult
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Head**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**100**
AEC type	**smart mA**
mA Range	**(170-590)**
Manual mA	**290.0**
Noise Index	**3.4**
Slice Thickness (mm)	**5**
Interval (mm)	**3.0**

Series 4, Recons

	Adult
Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Soft**
WW/WL	**80/25**
Recon Option	**Plus**
Recon Option	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**
Interval (mm)	**3.0**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**
Recon 3 (Secondary)	
DFOV	**22**
Recon Type	**Soft**
WW/WL	**180/25**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

Sinuses - Diagnostic 2.7/12.10/12.11/12.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Rhinosinusitis, Sinusitis, Nasal Discharge, Facial pain, Sinus surgery planning

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see below). The tip of the nose and both zygomatic bones must be on the scan.
- Use Axial CT Mode with patient positioned prone if a Coronal plane scan is ordered.
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adults

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	120 mL Iohexol 300 mgI/mL	3 mL/sec
200-300 lbs (90-136 kg)	140 mL Iohexol 300 mgI/mL	3 mL/sec
>300 lbs (>136 kg)	150 mL Iohexol 300 mgI/mL	3 mL/sec
Delay for Adults: (7 Yrs and Up) 60 sec after start of injection		

Pediatrics

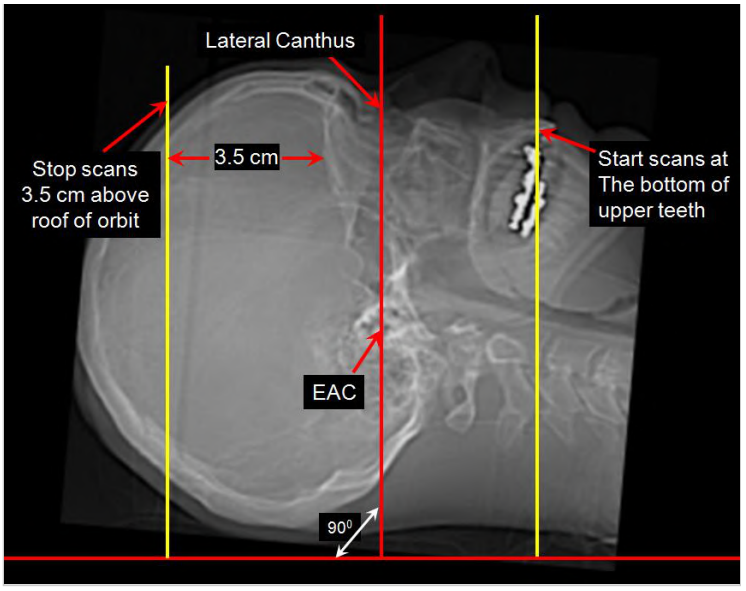
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) of Iohexol 300 mgI/mL	2 mL/sec
Delay for Pediatrics: (Ages 0-6 Yrs) 45 sec after start of injection		

Field of View

Preferred 14 cm

Scan Description

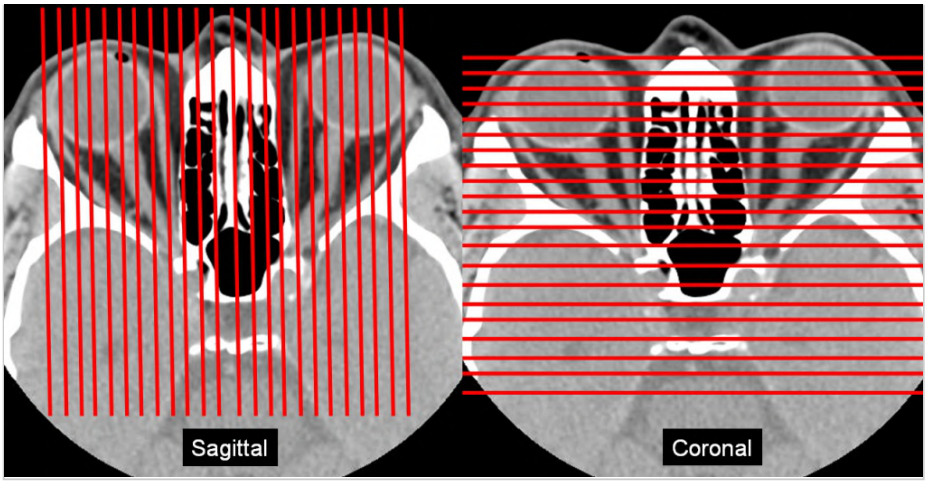
- Series 1 – Scouts PA and Lateral
- Series 2 – CT Sinus Without Contrast:
  - Adults: Scan from bottom of upper teeth to 3.5 cm above the orbital roof (see below). Be sure to include the entire nose and ears for pre-op requests.
  - Peds: Scan from bottom of upper teeth to top of frontal sinuses
- Series 3 – (If Indicated to do with contrast) Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection
- Series 3 – CT Sinus With Contrast:
  - Adults: Scan from bottom of upper teeth to 3.5 cm above the orbital roof (see below)
  - Peds: Scan from bottom of upper teeth to top of frontal sinuses.



scan range for sinus

Reformat Instructions

- All 2-D reformats described below are to be done as 2 mm x 1 mm reformats (see below)
  - Sagittal: Through both orbits. Be sure to include both TMJs.
  - Coronal: From the anterior aspect of the superior orbital rim through the sella. Be sure to include all of the TMJ.
- If this is an exam solely With contrast or solely Without contrast: Please perform 2D-reformats using both the ST AND the THIN BONE.
- If this is a "With & Without" contrast study: Please perform 2D reformats using ST from the With contrast series and THIN BONE from Non-Contrast series.



Sagittal and Coronal

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST	Manual	Average	400/30	2	1	Coronal
CO BONE	THIN BONE	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST	Manual	Average	400/30	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast (SOFT TISSUE reformats are made from the with contrast phase, BONE reformats are made from the without contrast phase)

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	400/30	2	1	Coronal
CO BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	400/30	2	1	Sagittal
SA BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	120	100	80
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	120	100	80
Scout 2 mA	20	20	20
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.984**	**0.984**	**0.984**
Speed (mm/rot)	**39.40**	**39.40**	**39.40**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(110-390)**	**(110-390)**	**(110-390)**
Manual mA	**180.0**	**180.0**	**180.0**
Noise Index	**11.6**	**12.1**	**12.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**14**	**14**	**14**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**400/30**	**400/30**	**400/30**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**14**	**14**	**14**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**14**	**14**	**14**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**400/30**	**400/30**	**400/30**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 3, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-250)**	**(70-250)**	**(60-200)**
Manual mA	**130.0**	**130.0**	**100.0**
Noise Index	**13.6**	**14.1**	**12.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**14**	**14**	**14**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**400/30**	**400/30**	**400/30**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**14**	**14**	**14**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**14**	**14**	**14**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**400/30**	**400/30**	**400/30**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead

of 0.312 mm.

Adult Neck - Routine 3.1/3.2/3.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

- Neck mass, globus sensation, lymphadenopathy, head and neck cancer evaluation/follow-up, pharyngitis, tonsillar or peritonsillar abscess, neck abscess.
- If the indication is for neck mass, especially for first time scans, please have patient place a BB on the palpable mass.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Have the patient remove any dentures or removable teeth, please place the shoulders as low possible
- Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- If the indication is for neck mass, especially for first time scans, please have patient place a BB on the palpable mass.
- When scanning a N/C/A/P with contrast use 100mls(chest/abd/pel) and 50mls(neck) Iohexol 300, Inject at 2mL/sec and set the prep group delay to 45 seconds on the neck protocol.
- When scanning a Chest and Neck with contrast use 75mls (chest) and 75mls (neck) Iohexol 300, Inject at 2mL/sec and set the prep group delay to 45 seconds on the neck protocol.

IV Contrast Parameters

ADULTS

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	60 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 40 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 2 mL/sec NaCl flush: 3 mL/sec
200-300 lbs (90-136 kg)	75 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 50 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 2.5 mL/sec NaCl flush: 3 mL/sec
>300 lbs (>136 kg)	85 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 55 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 3 mL/sec NaCl flush: 3 mL/sec
Delay for Adults: (7 Yrs and Up) 85 sec after start of injection		

PEDIATRICS

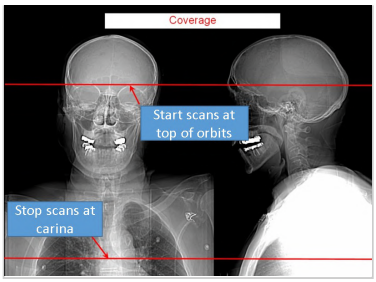
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) Iohexol 300 mgI/mL + 20 mL NaCl flush	Contrast: 1.5 mL/sec NaCl flush: 1.5 mL/sec
Delay for Pediatrics: (0-6 Yrs) 45 sec after start of injection		

Field of View

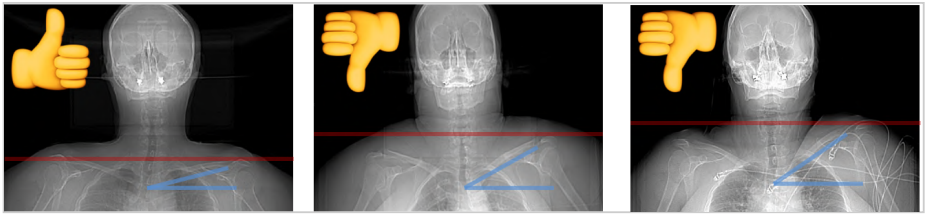
Preferred 30 cm

Scan Description

- **Series 1** – Scouts PA and Lateral
- **Series 2** – Neck with Contrast: Start the scan at the top of the orbit and scan to the carina. Remind the patient not to swallow during the scan.
  - Timing: Adults, 85 seconds Peds, 45 seconds after the start of injection. These Prep Delays are built into the protocol. NOTE: If scanning a NECK C/A/P please reduce Prep Delay to 45 seconds (Adults), 20 seconds (Peds) due to smaller contrast bolus.
- **Series 3** - Manual Angled Extension Views (the scanner does not tilt)- If there is a significant amount of metal artifact from dental work do the following:
  - Have the patient extend their neck as far back as possible. If necessary, place a rolled towel underneath the patient's shoulder to force extension in the neck.
  - Scout patient in new position
  - Coverage: From the bottom of the teeth through the mandible.



scan range for neck



Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

NOTE - if the patient has lymphoma and the study is a follow-up, use the small neck protocol (regardless of the patients actual size) since it will provide a lower dose

- Verify that the arms are outside of the CT wrap, and that the shoulders are relaxed down toward the feet as far as possible. Measure the width of the shoulders through the level of the mid-humeral head, as shown below.
- Check BMI
- Select small, medium and large based on the table below.

Measure width through mid-humeral heads	Small	Medium	Large
	Shoulder width less than 46 cm *OR* BMI less than 26	**Shoulder Width 46 to 50 cm**	**Shoulder width greater than 50 cm *OR* BMI greater than 35**

Reformat Instructions

- Reformats should cover from the tip of the nose through the back of the neck.
- Only send STD AND BONE to PACS. Use THIN ST for the soft tissue Reformats. Use THIN BONE for the bone Reformats.**For the soft tissue: Perform 2D reformats from Recon 3 in both the coronal and sagittal planes, using a 3 mm thickness and 1.5 mm increment.
- For bone: Perform 2D reformats from THIN BONE for both the coronal and sagittal planes, using a 1.5 mm thickness and 0.8 mm increment.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	**Thin ST**	**Manual**	**Average**	**300/35**	**3**	**1.5**	**Coronal**
CO BONE	**Thin Bone**	**Manual**	**Average**	**2500/350**	**1.5**	**0.75**	**Coronal**
SA ST	**Thin ST**	**Manual**	**Average**	**300/35**	**3**	**1.5**	**Sagittal**
SA BONE	**Thin Bone**	**Manual**	**Average**	**2500/350**	**1.5**	**0.75**	**Sagittal**

Networking

- All Images to PACS (ALI_Store). Do not send Thin Bone (non-MAR) or Thin STD (non-MAR).
- Send both standard and bone plus series for the angled axial images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**120**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**9.6**	**11.4**	**17.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 3, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**9.6**	**11.4**	**17.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 3, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Beam Collimation			
Detector Rows			
Detector Configuration			
Scan FOV			
Pitch			
Speed (mm/rot)			
Rotation Time (s)			
kV			
AEC type			
mA Range			
Manual mA			
Noise Index			
Slice Thickness (mm)			
Interval (mm)			

Series 3, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 2 (Secondary)			
DFOV	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			

Neck (Parathyroid Adenoma) 3.5/3.6/3.7

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Hypercalcemia, parathryoid adenoma (suspected or confirmed), parathyroid surgical planning.

Oral Contrast

None

Pre-Scan Instructions

- Start an 18g right sided IV.
- **This exam is scanned in 4 series. Series 1 are the PA and Lateral Scouts. Series 2 is the limited non contrast neck. Series 3 is an arterial neck. Series 4 is scanned immediately to follow as a Limited Coverage Routine Neck.**
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove any dentures or removable teeth; please place the shoulders as low as possible

IV Contrast Parameters

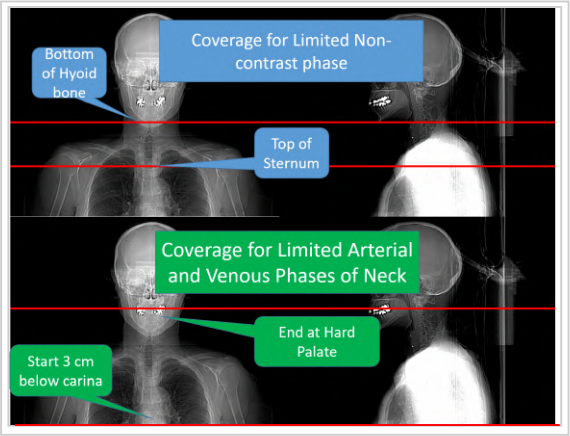
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	100 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4 mL/sec
200-300 lbs (90-136 kg)	120 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4.5 mL/sec
>300 lbs (>136 kg)	145 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	5 mL/sec

Field of View

1. Series 2: 20 cm
2. Series 3: 30 cm (as in routine neck CT)

Scan Description

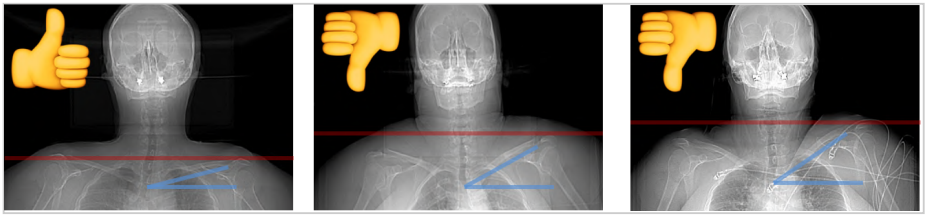
- **Series 1** – Scouts PA and Lateral
- **Series 2** - Limited Non Contrast Phase: Start scan at top of sternum through hyoid
- **Series 3** - Arterial Phase of Lower Neck: Start scans **3 cm below** the Carina and scan to the Hard Palate. Scan Series 4 (limited coverage routine neck) immediately after the arterial neck, without any delay.
    - Smart Prep: Over aortic arch (initiate scan at the entry of contrast in the aortic arch)



- **Series 4** – Limited Routine Neck: Start the scan **3 cm below** the Carina and scan to the top of the Hard Palate.
  - Do not use any CT scan delay, start scanning the Limited Routine Neck CT immediately after Series 3 is finished.
  - Perform angled views if necessary

(Revolution 256) Manual Angled Extension Views (the scanner does not tilt)- If there is a significant amount of metal artifact from dental work do the following:

-
  - Have the patient extend their neck as far back as possible. If necessary, place a rolled towel underneath the patient's shoulder to force extension in the neck.
  - Scout patient in new position
  - Coverage: From the bottom of the teeth through the mandible.



Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

Reformat Instructions

No reformats needed from the limited non contrast neck. Radiologists can create reformats if needed from the thin soft tissue images. Bone reformats are needed only for the routine neck phase, not the arterial phase.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA ST	Thin ST (from arterial phase)	Manual	Average	300/35	3	1.5	Sagittal
CO ST	Thin ST (from arterial phase)	Manual	Average	300/35	3	1.5	Coronal
SA ST	Thin ST (from routine neck phase)	Manual	Average	300/35	3	1.5	Sagittal
CO ST	Thin ST (from routine neck phase)	Manual	Average	300/35	3	1.5	Coronal
CO BONE	Thin Bone (from routine neck phase)	Manual	Average	2500/350	1.5	0.75	Coronal
SA BONE	Thin Bone (from routine neck phase)	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store). Do not send Thin Bone (non-MAR) or Thin STD (non-MAR).
- Send both standard and bone plus series for the angled axial images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small Adult	Medium Adult	Large Adult
Scout 1 kV	120	140	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	120	140	140
Scout 2 mA	80	80	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small Adult	Medium Adult	Large Adult
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Head**	**Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.6**	**0.6**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-740)**	**(170-740)**	**(170-740)**
Manual mA	**460.0**	**460.0**	**460.0**
Noise Index	**8.4**	**8.4**	**8.4**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Small Adult	Medium Adult	Large Adult
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**13.6**	**16.1**	**24.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**9.6**	**11.4**	**17.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 5, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**9.6**	**11.4**	**17.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 5, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 5, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Beam Collimation			
Detector Rows			
Detector Configuration			
Scan FOV			
Pitch			
Speed (mm/rot)			
Rotation Time (s)			
kV			
AEC type			
mA Range			
Manual mA			
Noise Index			
Slice Thickness (mm)			
Interval (mm)			

Series 5, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV **Recon Type** **WW/WL** **Recon Option** **Recon Option** **ASiR/ASiR256/DLIR** **Slice Thickness (mm)** **Interval (mm)**	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Recon 2 (Secondary)			
DFOV **Recon Type** **WW/WL** **Recon Option** **Recon Option** **ASiR/ASiR256/DLIR** **Slice Thickness (mm)** **Interval (mm)**	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256

Neck (Salivary Gland) 3.9

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Salivary gland swelling, Sialadenitis, Sialolith

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine (PA and lateral scouts from sella to mid chest)
- Make sure the patient removes any dentures or removable teeth
- No gantry angle
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

ADULTS

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	60 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 40 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 2 mL/sec NaCl flush: 3 mL/sec
200-300 lbs (90-136 kg)	75 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 50 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 2.5 mL/sec NaCl flush: 3 mL/sec
>300 lbs (>136 kg)	85 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 55 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 3 mL/sec NaCl flush: 3 mL/sec
Delay for Adults: (7 Yrs and Up) 85 sec after start of injection		

PEDIATRICS

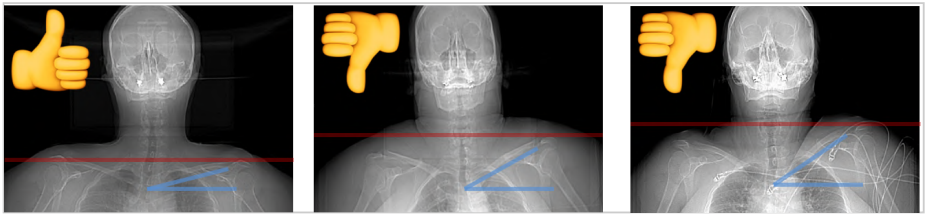
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) Iohexol 300 mgI/mL + 20 mL NaCl flush	Contrast: 1.5 mL/sec NaCl flush: 1.5 mL/sec
Delay for Pediatrics: (0-6 Yrs) 45 sec after start of injection		

Field of View

Preferred 30 cm

Scan Description

- Series 1: Scouts - PA and Lateral
- Series 2: Limited Non-contrast CT of Neck
  - Coverage: Scan from hyoid bone to EAC
  - No 2D Reconstructions
  - Use same scan factors as in routine neck CT
- Series 3: Do a routine Neck CT With Contrast Protocol
  - Be sure to do angled views if there are lots of dental fillings



Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

Reformat Instructions

- Reformats should cover from the tip of the nose through the back of the neck.
- Only send STD AND BONE to PACS. Use THIN ST for the soft tissue Reformats. Use THIN BONE for the bone Reformats.**For the soft tissue: Perform 2D reformats from Recon 3 in both the coronal and sagittal planes, using a 3 mm thickness and 1.5 mm increment.
- For bone: Perform 2D reformats from THIN BONE for both the coronal and sagittal planes, using a 1.5 mm thickness and 0.8 mm increment.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	300/35	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	300/35	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store). Do not send Thin Bone (non-MAR) or Thin STD (non-MAR).
- Send both standard and bone plus series for the angled axial images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Adult
Scout 1 kV	120
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	120
Scout 2 mA	80
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

	Adult
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Medium Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**smart mA**
mA Range	**(190-510)**
Manual mA	**480.0**
Noise Index	**9.6**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**

Series 2, Recons

	Adult
Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Standard**
WW/WL	**300/35**
Recon Option	**Plus**
Recon Option	
ASiR/ASiR256/DLIR	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

Series 3, Scan Phase

	Adult
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Medium Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**smart mA**
mA Range	**(190-510)**
Manual mA	**480.0**
Noise Index	**9.6**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**

Series 3, Recons

	Adult
Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Standard**
WW/WL	**300/35**
Recon Option	**Plus**
Recon Option	
ASiR/ASiR256/DLIR	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**
Recon 3 (Secondary)	
DFOV	**30**
Recon Type	**Standard**
WW/WL	**300/35**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**80% / 40% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**
Recon 4 (Secondary)	
DFOV	**30**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 4, Group 1, Scan Phase

Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Medium Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**smart mA**
mA Range	**(190-510)**
Manual mA	**480.0**
Noise Index	**9.6**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**

Series 4, Group 1, Recons

Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Standard**
WW/WL	**300/35**
Recon Option	**Plus**
Recon Option	
ASiR/ASiR256/DLIR	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**
Interval (mm)	**1.5**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

Series 4, Group 2, Scan Phase

Scan Type	Do not perform 2nd group on Rev256
Beam Collimation	
Detector Rows	
Detector Configuration	
Scan FOV	
Pitch	
Speed (mm/rot)	
Rotation Time (s)	
kV	
AEC type	
mA Range	
Manual mA	
Noise Index	
Slice Thickness (mm)	
Interval (mm)	

Series 4, Group 2, Recons

Recon 1 (Primary)	
DFOV **Recon Type** **WW/WL** **Recon Option** **Recon Option** **ASiR/ASiR256/DLIR** **Slice Thickness (mm)** **Interval (mm)**	Do not perform 2nd group on Rev256
Recon 2 (Secondary)	
DFOV **Recon Type** **WW/WL** **Recon Option** **Recon Option** **ASiR/ASiR256/DLIR** **Slice Thickness (mm)** **Interval (mm)**	Do not perform 2nd group on Rev256

CTA Neck Only (Cerebrovascular Disease) 3.11/11.22/11.23/11.24

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Carotid Stenosis, Vertebral stenosis, dissection, trauma, hemorrhage

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Start an 18g right sided IV. If it is a stroke code and an IV is already placed, please do not re-stick the patient.
- Extend the scouts to include the aortic arch for smart prep.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

Adult CTA

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
200-300 lbs (90-136 kg)	100 mL of Iopamidol 370 mgI/ml (Isovue) + 50 mL NaCl flush	5 mL/sec
>300 lbs (>136 kg)	120 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec

Pediatrics CTA

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1 mL/kg (~0.5 mL/lb) of Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	2 mL/sec

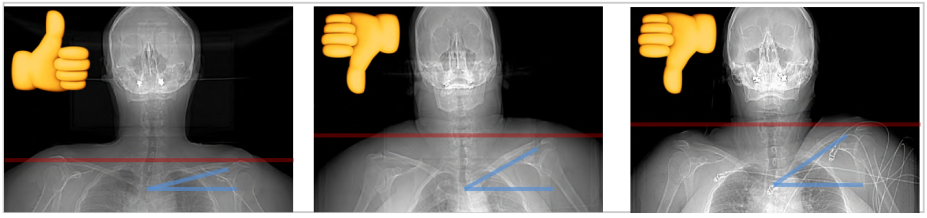
Field of View

Preferred 22 cm

Scan Description

- **Series 1** – Scouts PA and Lateral
- **Series 2** - CTA Neck Only: Scan from Carina and end at EAC (bottom to top.)
  - Smart Prep: place ROI on aortic arch (initiate the scan at contrast entry)

- **Series 3** - Optional - **For patients needing a Delay Routine CT Neck after the CTA Neck use the Routine CT neck protocol and obtain the scan at 80 seconds from the start of the contrast injection.**



Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

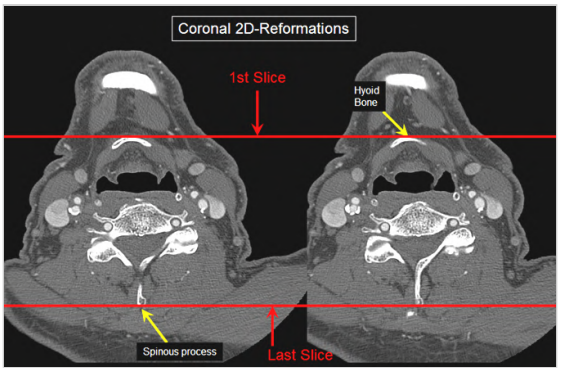
Reformat Instructions

Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

2D MIP-Reformations through the vertebral and carotid arteries

- Use an axial image near the level of the hyoid bone at the carotid bifurcation to prescribe the correct oblique angles. Use an image that shows the external and internal carotid arteries.
- Choose only the axial images from the aortic arch to the EAC.
- Include both the carotid and vertebral arteries (See example below)
- Send all images to ALI Store (PACS).



Coronal and Sagittal 2D- MIP Reformats
Through Carotid Bifurcations

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	Thin ST	Manual	MIP	800/200	10	2.5	sagittal
CO	Thin ST	Manual	MIP	800/200	10	2.5	coronal
SA ST	Thin ST	Manual	Average	300/35	3	1.5	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Adult and Adolescent	Child	Infant
Scout 1 kV	120	100	80
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	120	100	80
Scout 2 mA	20	20	20
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Adult and Adolescent	Child	Infant
mA	**80**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3.0**	**3.0**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Adult and Adolescent	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**0.7**	**0.8**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-740)**	**(150-630)**	**(130-550)**
Manual mA	**460.0**	**400.0**	**350.0**
Noise Index	**8.4**	**8.7**	**7.4**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 2, Recons

	Adult and Adolescent	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Neck (Papillary Hypervascular) 3.13/3.14/3.15

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Hypervascular tumor, especially concern for papillary thyroid cancer metastasis.

Oral Contrast

None

Pre-Scan Instructions

- Start an 18g right sided IV.
- Patient Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove any dentures or removable teeth; please place the shoulders as low as possible

IV Contrast Parameters

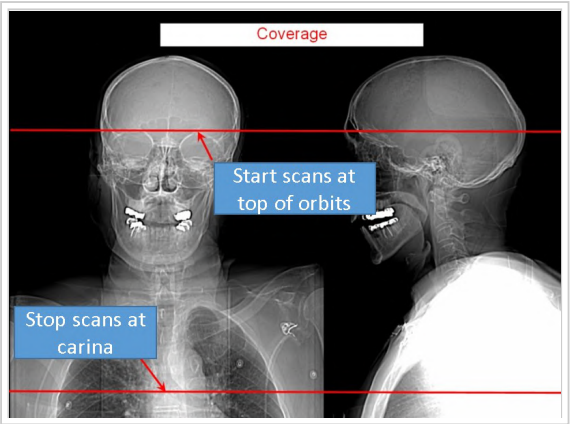
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	100 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4 mL/sec
200-300 lbs (90-136 kg)	120 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4.5 mL/sec
>300 lbs (>136 kg)	145 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	5 mL/sec

Field of View

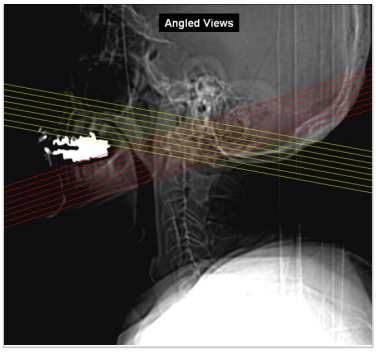
1. Series 2: 20 cm
2. Series 3: 30 cm (as in routine neck CT)

Scan Description

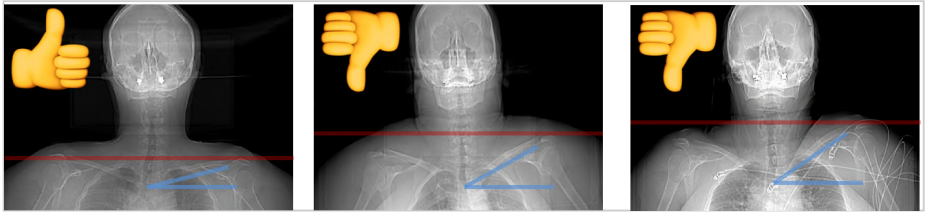
- **Series 1** – Scouts PA and Lateral
- **Series 2** - Arterial Phase: Start the scan at the carina, scan to the top of the orbit.
  - Remind the patient not to swallow during the scan.
  - Scan Series 3 (routine neck) immediately after the arterial neck, without any delay.
  - Smart Prep: Over aortic arch (initiate scan at the entry of contrast in the aortic arch)



- **Series 3** – Routine Neck:
  - Coverage - Start the scan at the top of the orbit, scan to the carina.
  - Timing - No delay, start scanning the routine neck CT immediately after Series 2 is finished.
- **Series 4** - Angled Axials- If there is a significant amount of metal artifact from dental work
  - Non Revolution CT (Rev 256) perform angled axials at 2 different angels. (see below picture)
  - Revolution CT (Rev 256)
    - Have the patient extend their neck as far back as possible. If necessary, place a rolled towel underneath the patient's shoulder to force extension in the neck.
    - Scout patient in new position
    - Coverage: From the bottom of the teeth through the mandible.



Angled Views (only on non Revolution CT (Rev 256) scanners)



Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

Reformat Instructions

See table below.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA ST	Thin ST (from arterial phase)	Manual	Average	300/35	3	1.5	Sagittal
CO ST	Thin ST (from arterial phase)	Manual	Average	300/35	3	1.5	Coronal
SA ST	Thin ST (from routine neck phase)	Manual	Average	300/35	3	1.5	Sagittal
CO ST	Thin ST (from routine neck phase)	Manual	Average	300/35	3	1.5	Coronal
CO BONE	Thin Bone (from routine neck phase)	Manual	Average	2500/350	1.5	0.75	Coronal
SA BONE	Thin Bone (from routine neck phase)	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store). Do not send Thin Bone (non-MAR) or Thin STD (non-MAR).
- Send both standard and bone plus series for the angled axial images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small Adult	Medium Adult	Large Adult
Scout 1 kV	**120**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Small Adult	Medium Adult	Large Adult
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**13.6**	**16.1**	**24.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**9.6**	**11.4**	**17.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Series 4, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**9.6**	**11.4**	**17.0**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 4, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Beam Collimation			
Detector Rows			
Detector Configuration			
Scan FOV			
Pitch			
Speed (mm/rot)			
Rotation Time (s)			
kV			
AEC type			
mA Range			
Manual mA			
Noise Index			
Slice Thickness (mm)			
Interval (mm)			

Series 4, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 2 (Secondary)			
DFOV	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256	Do not perform 2nd group on Rev256
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			

Adult Cervical Spine (without Metal) 3.16/3.17/3.18

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, neck pain, cervical stenosis, radiculopathy, fracture, evaluate fixation hardware

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Patient Positioning:
  - Warning: Do not flex or extend the neck if there has been recent spine trauma or if the patient is in a C-Spine trauma collar.
  - If no recent trauma, tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.
  - The shoulders should be pulled down as much as possible
- Remove all metallic and high-density objects from the scanning area.
- Post T and L Spine Myelogram patients: Please remember to roll the patient 360 degrees before scanning in order to distribute the contrast evenly in the spinal canal.

IV Contrast Parameters

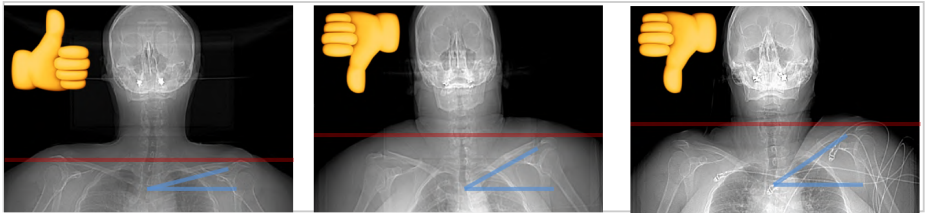
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec
200-300 lbs (90-136 kg)	110 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3.5 mL/sec
>300 lbs (>136 kg)	120 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
Use 120 mL if a head is scanned with the spine. Under smart prep, add a diagnostic delay of 15 seconds for 16 slice scanner and 20 seconds for all other scanners.		

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT C-Spine without: Scan from the top of the sella to the bottom of T2
- Series 3 - CT C-Spine with: Scan from the top of the sella to the bottom of T2
  - Smart Prep: place ROI on the aortic arch.
    - After the arrival of contrast in aortic arch there will be a diagnostic delay: 15 sec (16 slice scanners), 20 sec (64 slice scanners)



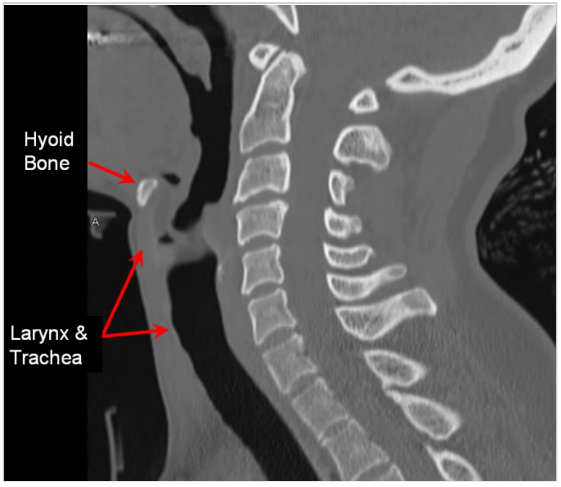
Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

- Verify that the arms are outside of the CT wrap, and that the shoulders are relaxed down toward the feet as far as possible. Measure the width of the shoulders through the level of the mid-humeral head, as shown below.
- Check BMI
- Select small, medium and large based on the table below.

Measure width through mid-humeral heads	Small	Medium	Large
	Shoulder width less than 46 cm *OR* BMI less than 26	**Shoulder Width 46 to 50 cm**	**Shoulder width greater than 50 cm *OR* BMI greater than 35**

Reformat Instructions

- If the patient has a lot of metal in their teeth please use the MARS recons for the reformats.
- If this is an exam solely With contrast or solely Without contrast: Please perform 2D-reformats using both the ST AND the THIN BONE.
- If this is a “With & Without” contrast study: Please perform 2D reformats using ST from the With contrast series and THIN BONE from Non-Contrast series.



Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	450/50	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	3	1.5	Coronal
CO BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	3	1.5	Sagittal
SA BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**140**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**140**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**11.2**	**13.3**	**19.7**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**20**	**20**	**20**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(190-510)**	**(150-500)**	**(170-635)**
Manual mA	**480.0**	**370.0**	**430.0**
Noise Index	**11.2**	**13.3**	**19.7**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Adult Cervical Spine (with Metal) 3.19/3.20/3.21

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, neck pain, cervical stenosis, radiculopathy, fracture, evaluate fixation hardware

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Patient Positioning:
  - Warning: Do not flex or extend the neck if there has been recent spine trauma or if the patient is in a C-Spine trauma collar.
  - If no recent trauma, tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.
  - The shoulders should be pulled down as much as possible
- Remove all metallic and high-density objects from the scanning area.
- Post T and L Spine Myelogram patients: Please remember to roll the patient 360 degrees before scanning in order to distribute the contrast evenly in the spinal canal.

IV Contrast Parameters

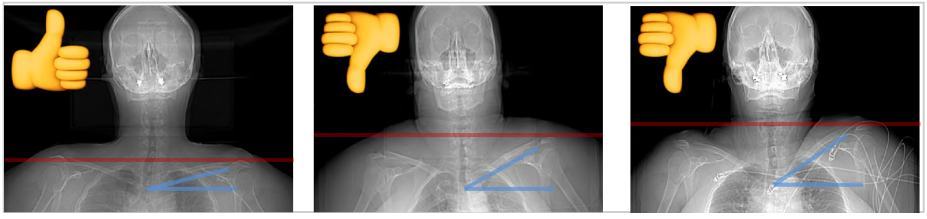
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec
200-300 lbs (90-136 kg)	110 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3.5 mL/sec
>300 lbs (>136 kg)	120 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
Use 120 mL if a head is scanned with the spine. Under smart prep, add a diagnostic delay of 15 seconds for 16 slice scanner and 20 seconds for all other scanners.		

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT C-Spine without: Scan from the top of the sella to the bottom of T2
- Series 3 - CT C-Spine with: Scan from the top of the sella to the bottom of T2
  - Smart Prep: place ROI on the aortic arch.
    - After the arrival of contrast in aortic arch there will be a diagnostic delay: 15 sec (16 slice scanners), 20 sec (64 slice scanners)



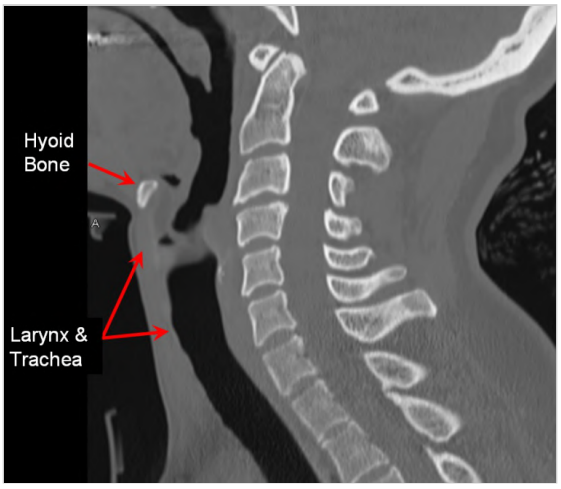
Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

- Verify that the arms are outside of the CT wrap, and that the shoulders are relaxed down toward the feet as far as possible. Measure the width of the shoulders through the level of the mid-humeral head, as shown below.
- Check BMI
- Select small, medium and large based on the table below.

Measure width through mid-humeral heads	Small	Medium	Large
	Shoulder width less than 46 cm *OR* BMI less than 26	**Shoulder Width 46 to 50 cm**	**Shoulder width greater than 50 cm *OR* BMI greater than 35**

Reformat Instructions

- If the patient has a lot of metal in their teeth please use the MARS recons for the reformats.
- If this is an exam solely With contrast or solely Without contrast: Please perform 2D-reformats using both the ST AND the THIN BONE.
- If this is a “With & Without” contrast study: Please perform 2D reformats using ST from the With contrast series and THIN BONE from Non-Contrast series.



Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	450/50	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	3	1.5	Coronal
CO BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	3	1.5	Sagittal
SA BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**140**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**140**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-450)**	**(180-590)**	**(210-635)**
Manual mA	**430.0**	**450.0**	**510.0**
Noise Index	**8.8**	**12.1**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**20**	**20**	**20**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-450)**	**(180-590)**	**(210-635)**
Manual mA	**430.0**	**450.0**	**510.0**
Noise Index	**8.8**	**12.1**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Adult Lumbar Spine (without Metal) 7.1/7.2/7.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, neck pain, lumbar stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Remove all metallic and high-density objects from the scanning area.
- Scan from the top of T12 to the top of S2
- Post myelography patients: Please remember to roll the patient 360 degrees before scanning to distribute the contrast evenly in the spinal canal.
- **Only if both CT T and L Spines are ordered**
  - Please start scanning T and L Spines together (scanning acquisition parameters are identical so we will be saving the patients some radiation dose due to avoiding any overlap).
  - Do separate coronal and sagittal reformats and send to PACS as 2 different exams using exam split.
  - Axial images of the entire Spine (T and L) should be sent to both T and L Spine exams. Sagittal and coronal reformats for the T-Spine should go from C7 to L1, and the sag and cor reformats from the L-Spine go from T12 to S2.
  - Also include the entire T/L Spine sagittal reformat. Do not include a coronal reformat of the entire T/L Spine.

IV Contrast Parameters

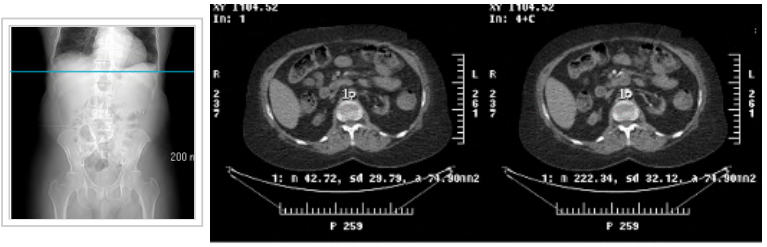
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 ml Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec
200-300 lbs (90-136 kg)	110 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3.5 mL/sec
>300 lbs (>136 kg)	120 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
Use 120 ml if a head is scanned with the spine. Under smart prep, add a diagnostic delay of 15 seconds for 16 slice scanner and 20 seconds for all other scanners.		

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT L-Spine without: Scan from the top of T12 to the top of S2
- Series 3 - CT L-Spine with: Scan from the top of T12 to the top of S2
  - Smart Prep Place ROI on the abdominal aorta
    - After the arrival of contrast in the abdominal aorta there will be a diagnostic delay: 15 sec (16 slice scanners), 20 sec (64 slice scanners)



Reformat Instructions

- Do not send the 0.625 mm bone images (Recon 2) to PACS
- Do 2 x 1 mm coronal and sagittal 2D-reformats.
- If exam is solely with contrast or solely without contrast: Do 2D-reformats using both the standard 1.25 mm images (Recon 1) AND the bone 0.625 mm images (Recon 2)
- If this is a “with & without” contrast study: Do not do Recons 2 and 3 on the non-contrast part
- If this is a “with & without” contrast study: Do 2D-reformats only from the contrast portion of the study using standard 1.25 mm images (Recon 1) AND bone 0.625 mm images (Recon 2)

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	2	1	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	Thin ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-530)**	**(60-560)**	**(60-635)**
Manual mA	**330.0**	**280.0**	**370.0**
Noise Index	**13.5**	**15.5**	**19.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**15**	**15**	**15**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**20**	**20**	**20**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-530)**	**(60-560)**	**(60-635)**
Manual mA	**330.0**	**280.0**	**370.0**
Noise Index	**13.5**	**15.5**	**19.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Adult Thoracic Spine (without Metal) 7.4/7.5/7.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, thoracic pain, thoracic stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Remove all metallic and high-density objects from the scanning area.
- Post myelography patients: Please remember to roll the patient 360 degrees before scanning to distribute the contrast evenly in the spinal canal.
- **Only if both CT T and L spines are ordered**
  - Please start scanning T and L spines together (scanning acquisition parameters are identical so we will be saving the patients some radiation dose due to avoiding any overlap).
  - Do separate coronal and sagittal reformats and send to PACS as 2 different exams using exam split.
  - Axial images of the entire Spine (T and L) should be sent to both T and L Spine exams. Sagittal and coronal reformats for the T-Spine should go from C7 to L1, and the sag and cor reformats from the L-Spine go from T12 to S2.
  - Also include the entire T/L Spine sagittal reformat. Do not include a coronal reformat of the entire T/L Spine.

IV Contrast Parameters

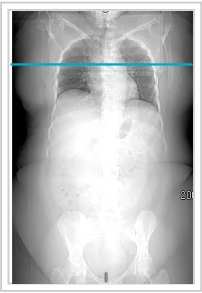
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec
200-300 lbs (90-136 kg)	110 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3.5 mL/sec
>300 lbs (>136 kg)	120 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4 mL/sec
Use 120 mL if a head is scanned with the spine. Under smart prep, add a diagnostic delay of 15 seconds for 16 slice scanner and 20 seconds for all other scanners.		

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT T-Spine without: Scan from the top of C7 to the bottom of L1
- Series 3 - CT T-spine with: Scan from the top of C7 to the bottom of L1
  - Smart Prep: Place ROI on the aortic arch.
    - After the arrival of contrast in aortic arch there will be a diagnostic delay: 15 sec (16 slice scanners), 20 sec (64 slice scanners)



Reformat Instructions

- Do not send the 0.625 mm bone images (Recon 2) to PACS
- Do 2 x 1 mm coronal and sagittal 2D-reformats.
- If exam is solely with contrast or solely without contrast: Do 2D-reformats using both the standard 1.25 mm images (Recon 1) AND the bone 0.625 mm images (Recon 2)
- If this is a “with & without” contrast study: Do not do Recons 2 and 3 on the non-contrast part
- If this is a “with & without” contrast study: Do 2D-reformats only from the contrast portion of the study using standard 1.25 mm images (Recon 1) AND bone 0.625 mm images (Recon 2)

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	2	1	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	Thin ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-530)**	**(60-560)**	**(60-635)**
Manual mA	**330.0**	**280.0**	**370.0**
Noise Index	**13.5**	**15.5**	**19.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.

2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**15**	**15**	**15**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**20**	**20**	**20**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-530)**	**(60-560)**	**(60-635)**
Manual mA	**330.0**	**280.0**	**370.0**
Noise Index	**13.5**	**15.5**	**19.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Adult Lumbar Spine (with Metal) 7.10/7.11/7.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, neck pain, lumbar stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Remove all metallic and high-density objects from the scanning area.
- Scan from the top of T12 to the top of S2
- Post myelography patients: Please remember to roll the patient 360 degrees before scanning to distribute the contrast evenly in the spinal canal.
- **Only if both CT T and L Spines are ordered**
  - Please start scanning T and L Spines together (scanning acquisition parameters are identical so we will be saving the patients some radiation dose due to avoiding any overlap).
  - Do separate coronal and sagittal reformats and send to PACS as 2 different exams using exam split.
  - Axial images of the entire Spine (T and L) should be sent to both T and L Spine exams. Sagittal and coronal reformats for the T-Spine should go from C7 to L1, and the sag and cor reformats from the L-Spine go from T12 to S2.
  - Also include the entire T/L Spine sagittal reformat. Do not include a coronal reformat of the entire T/L Spine.

IV Contrast Parameters

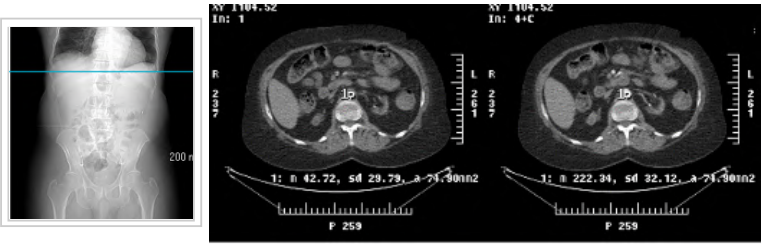
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 ml Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec
200-300 lbs (90-136 kg)	110 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3.5 mL/sec
>300 lbs (>136 kg)	120 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	4 mL/sec
Use 120 ml if a head is scanned with the spine. Under smart prep, add a diagnostic delay of 15 seconds for 16 slice scanner and 20 seconds for all other scanners.		

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT L-Spine without: Scan from the top of T12 to the top of S2
- Series 3 - CT L-Spine with: Scan from the top of T12 to the top of S2
  - Smart Prep Place ROI on the abdominal aorta
    - After the arrival of contrast in the abdominal aorta there will be a diagnostic delay: 15 sec (16 slice scanners), 20 sec (64 slice scanners)



Reformat Instructions

- Do not send the 0.625 mm bone images (Recon 2) to PACS
- Do 2 x 1 mm coronal and sagittal 2D-reformats.
- If exam is solely with contrast or solely without contrast: Do 2D-reformats using both the standard 1.25 mm images (Recon 1) AND the bone 0.625 mm images (Recon 2)
- If this is a “with & without” contrast study: Do not do Recons 2 and 3 on the non-contrast part
- If this is a “with & without” contrast study: Do 2D-reformats only from the contrast portion of the study using standard 1.25 mm images (Recon 1) AND bone 0.625 mm images (Recon 2)

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	2	1	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	Thin ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**140**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**140**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-450)**	**(60-590)**	**(70-635)**
Manual mA	**280.0**	**290.0**	**450.0**
Noise Index	**9.0**	**12.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**15**	**15**	**15**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**20**	**20**	**20**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-450)**	**(60-590)**	**(70-635)**
Manual mA	**280.0**	**290.0**	**450.0**
Noise Index	**9.0**	**12.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

Adult Thoracic Spine (with Metal) 7.13/7.14/7.15

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, thoracic pain, thoracic stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Remove all metallic and high-density objects from the scanning area.
- Post myelography patients: Please remember to roll the patient 360 degrees before scanning to distribute the contrast evenly in the spinal canal.
- **Only if both CT T and L spines are ordered**
  - Please start scanning T and L spines together (scanning acquisition parameters are identical so we will be saving the patients some radiation dose due to avoiding any overlap).
  - Do separate coronal and sagittal reformats and send to PACS as 2 different exams using exam split.
  - Axial images of the entire Spine (T and L) should be sent to both T and L Spine exams. Sagittal and coronal reformats for the T-Spine should go from C7 to L1, and the sag and cor reformats from the L-Spine go from T12 to S2.
  - Also include the entire T/L Spine sagittal reformat. Do not include a coronal reformat of the entire T/L Spine.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	80 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3 mL/sec
200-300 lbs (90-136 kg)	110 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	3.5 mL/sec
>300 lbs (>136 kg)	120 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	4 mL/sec
Use 120 mL if a head is scanned with the spine. Under smart prep, add a diagnostic delay of 15 seconds for 16 slice scanner and 20 seconds for all other scanners.		

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT T-Spine without: Scan from the top of C7 to the bottom of L1
- Series 3 - CT T-spine with: Scan from the top of C7 to the bottom of L1
  - Smart Prep: Place ROI on the aortic arch.
    - After the arrival of contrast in aortic arch there will be a diagnostic delay: 15 sec (16 slice scanners), 20 sec (64 slice scanners)

Reformat Instructions

- Do not send the 0.625 mm bone images (Recon 2) to PACS
- Do 2 x 1 mm coronal and sagittal 2D-reformats.
- If exam is solely with contrast or solely without contrast: Do 2D-reformats using both the standard 1.25 mm images (Recon 1) AND the bone 0.625 mm images (Recon 2)
- If this is a “with & without” contrast study: Do not do Recons 2 and 3 on the non-contrast part
- If this is a “with & without” contrast study: Do 2D-reformats only from the contrast portion of the study using standard 1.25 mm images (Recon 1) AND bone 0.625 mm images (Recon 2)

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	2	1	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	Thin ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store) except the thin bone.
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

All MAR recons and reformats should be sent to PACS (ALI_Store). Label MAR reformats with the word "MAR" at the end, for example "CO ST MAR".

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**140**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**140**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-450)**	**(60-590)**	**(70-635)**
Manual mA	**280.0**	**290.0**	**450.0**
Noise Index	**9.0**	**12.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.

2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**15**	**15**	**15**
Monitoring ISD (sec)	**3**	**3**	**3**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**20**	**20**	**20**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**0.7**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-450)**	**(60-590)**	**(70-635)**
Manual mA	**280.0**	**290.0**	**450.0**
Noise Index	**9.0**	**12.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If Metal

	Small	Medium	Large
Recon 4 (Secondary)			
DFOV	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

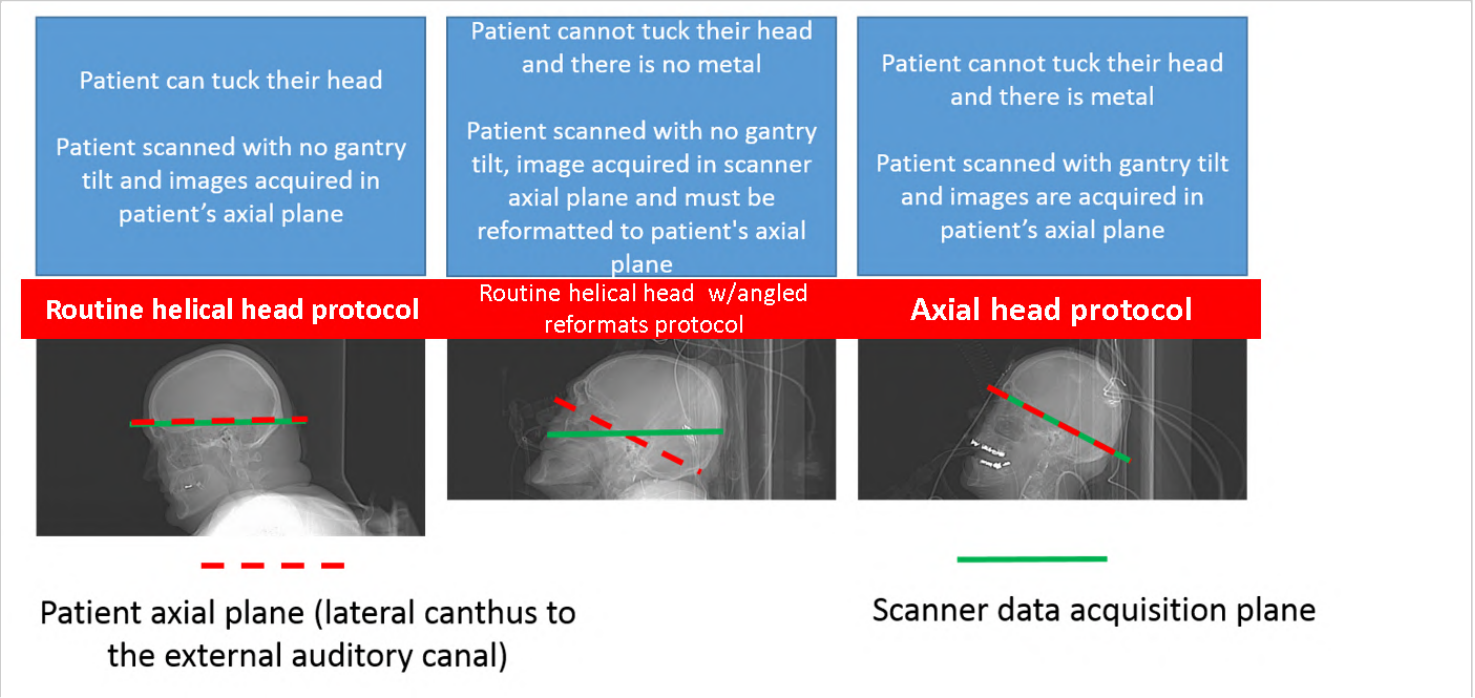
Pediatric Low - Dose Hydrocephalus 11.31/11.32

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Ventriculostomy shunt - concern for hydrocephalus, evaluate ventricle size



Guidance on choosing the correct version of the routine head protocol

Oral Contrast

None

Pre-Scan Instructions

- Helical mode should be used routinely for head CT scans. Only use axial mode when you cannot move the patient's head into proper position (trauma, cervical collar, rigid neck), AND dental work would cause streak artifact in base of brain.
- Positioning: Tilt the patients head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see below). Use axial mode and angle the gantry if you cannot place the patient's head within 15 degrees of the proper setup angle.
- Remove all metallic and high-density objects from the scanning area.

IV Contrast Parameters

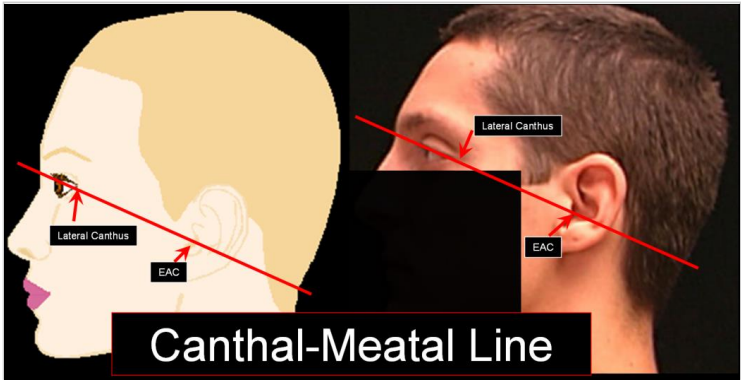
None

Field of View

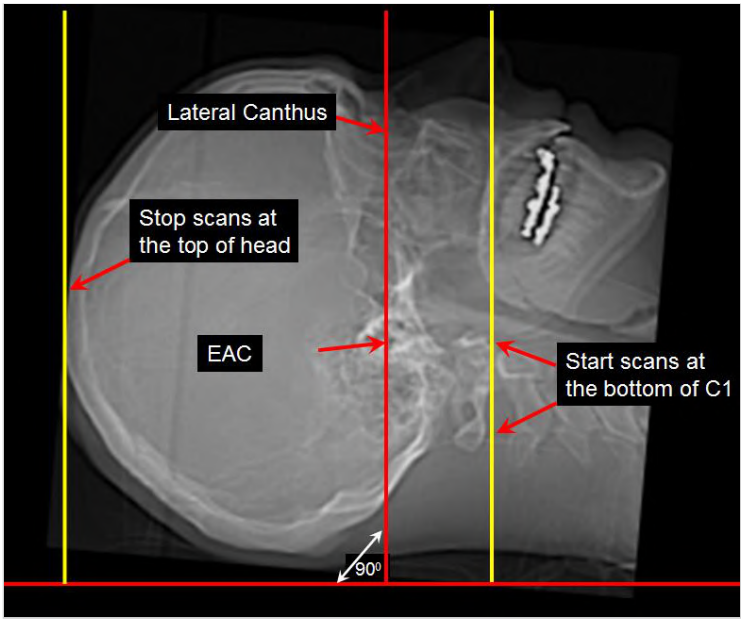
Preferred 22 cm

Scan Description

- Series 1-Scouts PA and Lateral
- Series 2-Scan Phase
  - Scan Range, start scans at the bottom of C1 and scan through the top of the head



Canthal-Meatal Line



scan range for brain

Reformat Instructions

See the table below.

If the patient's true axial plane is not aligned with the scanner's axial plane, please preform an additional axial soft tissue and axial bone reformat. You will have to manually align the images to the patient's true axial plane.

Reformats

Name (Peds)	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL (Peds)	Slice Thickness (mm) (Peds)	Interval (mm) (Peds)	Orientation
CO ST	THIN ST	Manual	Average	150/30	3	1.5	Coronal
SA ST	THIN ST	Manual	Average	150/30	3	1.5	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Choose the CT scan factors on the scanner for the proper age range of the patient:

- Adult: (>= 18 years)
- Adolescent: (7 - 17 years)
- Child: (3 – 6 years)
- Infant: (0 – 2 years)

Acquisition Parameters

Series 1, Scout

	Child	Infant
Scout 1 kV	**100**	**80**
Scout 1 mA	**10**	**10**
Scout 1 Angle	**180**	**180**
Scout 2 kV	**100**	**80**
Scout 2 mA	**20**	**20**
Scout 2 Angle	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**

Series 2, Scan Phase

	Child	Infant
Scan Type	**Helical**	**Helical**
Beam Collimation	**40**	**40**
Detector Rows	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**
Scan FOV	**Small Head**	**Small Head**
Pitch	**0.984**	**0.984**
Speed (mm/rot)	**39.40**	**39.40**
Rotation Time (s)	**0.35**	**0.35**
kV	**100**	**80**
AEC type	**smart mA**	**smart mA**
mA Range	**(110-390)**	**(110-390)**
Manual mA	**180.0**	**180.0**
Noise Index	**12.1**	**12.0**
Slice Thickness (mm)	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**

Series 2, Recons

	Child	Infant
Recon 1 (Primary)		
DFOV	**22**	**22**
Recon Type	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**
Recon Option	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**
Recon Option	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**
Recon 2 (Secondary)		
DFOV	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**
Recon Option		
ASiR/ASiR256/DLIR	**None**	**None**
Slice Thickness (mm)	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**
Recon 3 (Secondary)		
DFOV	**22**	**22**
Recon Type	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**
Recon Option	**Plus**	**Plus**
Recon Option	**EC2**	**EC2**
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Pediatric Neck - Routine 13.1.1/13.2.1/13.4.1/13.6.1/13.8.1

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

- Neck mass, globus sensation, lymphadenopathy, head and neck cancer evaluation/follow-up, pharyngitis, tonsillar or peritonsillar abscess, neck abscess.
- If the indication is for neck mass, especially for first time scans, please have patient place a BB on the palpable mass.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Patient supine, PA and lateral scouts from sella to mid chest (include the aortic arch), no gantry angle
- Have the patient remove any dentures or removable teeth, please place the shoulders as low possible
- Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.
- If the indication is for neck mass, especially for first time scans, please have patient place a BB on the palpable mass.
- Perform angled views if there are artifacts from dental fillings or metal hardware. Check with Radiologist before performing angled views on Pediatric patients, we rarely do these (see below)

IV Contrast Parameters

ADULTS

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	60 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 40 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 2 mL/sec NaCl flush: 3 mL/sec
200-300 lbs (90-136 kg)	75 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 50 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 2.5 mL/sec NaCl flush: 3 mL/sec
>300 lbs (>136 kg)	85 mL Iohexol 300 mgI/mL PAUSE 30 SECONDS AND THEN 55 mL Iohexol 300 mgI/mL + 50 mL NaCl flush	Contrast: 3 mL/sec NaCl flush: 3 mL/sec
Delay for Adults: (7 Yrs and Up) 85 sec after start of injection		

PEDIATRICS

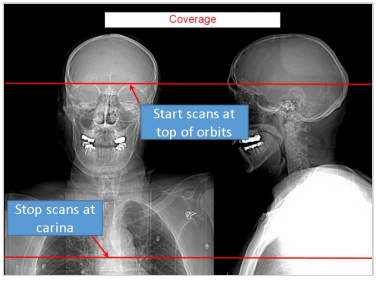
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) Iohexol 300 mgI/mL + 20 mL NaCl flush	Contrast: 1.5 mL/sec NaCl flush: 1.5 mL/sec
Delay for Pediatrics: (0-6 Yrs) 45 sec after start of injection		

Field of View

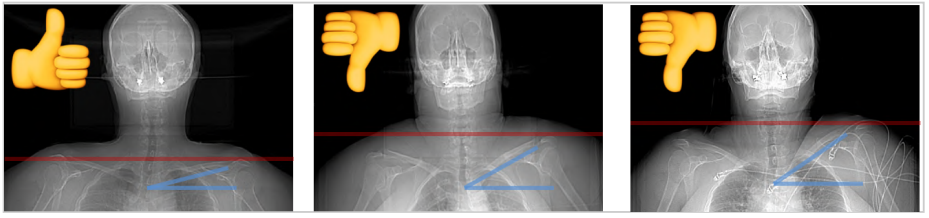
Preferred 30 cm

Scan Description

- **Series 1** – Scouts PA and Lateral
- **Series 2** – Neck with Contrast: Start the scan at the top of the orbit and scan to the carina. Remind the patient not to swallow during the scan.
  - Timing: Adults, 85 seconds Peds, 45 seconds after the start of injection. These Prep Delays are built into the protocol. NOTE: If scanning a NECK C/A/P please reduce Prep Delay to 45 seconds (Adults), 20 seconds (Peds) due to smaller contrast bolus.
- **Series 3** - Manual Angled Extension Views (the scanner does not tilt)- If there is a significant amount of metal artifact from dental work do the following:
  - Have the patient extend their neck as far back as possible. If necessary, place a rolled towel underneath the patient's shoulder to force extension in the neck.
  - Scout patient in new position
  - Coverage: From the bottom of the teeth through the mandible.



scan range for neck



Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there is no need to re-scout the patient after they move their shoulders.

NOTE - if the patient has lymphoma and the study is a follow-up, use the small neck protocol (regardless of the patients actual size) since it will provide a lower dose

- Verify that the arms are outside of the CT wrap, and that the shoulders are relaxed down toward the feet as far as possible. Measure the width of the shoulders through the level of the mid-humeral head, as shown below.
- Check BMI
- Select small, medium and large based on the table below.

Measure width through mid-humeral heads	Small	Medium	Large
	Shoulder width less than 46 cm *OR* BMI less than 26	**Shoulder Width 46 to 50 cm**	**Shoulder width greater than 50 cm *OR* BMI greater than 35**

Reformat Instructions

- Reformats should cover from the tip of the nose through the back of the neck.
- Only send STD AND BONE to PACS. Use THIN ST for the soft tissue Reformats. Use THIN BONE for the bone Reformats.**For the soft tissue: Perform 2D reformats from Recon 3 in both the coronal and sagittal planes, using a 3 mm thickness and 1.5 mm increment.
- For bone: Perform 2D reformats from THIN BONE for both the coronal and sagittal planes, using a 1.5 mm thickness and 0.8 mm increment.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	400/60	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	400/60	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	100	120
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	100	120
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**0.984**	**0.984**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**39.40**	**39.40**	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(110-170)**	**(140-220)**	**(120-180)**	**(170-270)**	**(250-390)**
Manual mA	**170.0**	**210.0**	**170.0**	**250.0**	**370.0**
Noise Index	**7.2**	**8.2**	**9.2**	**8.3**	**8.5**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**30**	**30**	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
Recon 2 (Secondary)					
DFOV	**22**	**22**	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**30**	**30**	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**	**300/35**	**300/35**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)					
DFOV	**30**	**30**	**30**	**30**	**30**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The

slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.

3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**0.984**	**0.984**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**39.40**	**39.40**	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(110-170)**	**(140-220)**	**(120-180)**	**(170-270)**	**(250-390)**
Manual mA	**170.0**	**210.0**	**170.0**	**250.0**	**370.0**
Noise Index	**7.2**	**8.2**	**9.2**	**8.3**	**8.5**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**22**	**22**	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
WW/WL	**300/35**	**300/35**	**300/35**	**300/35**	**300/35**
Recon Option	**Full**	**Full**	**Full**	**Full**	**Full**
Recon Option					
ASiR/ASiR256/DLIR	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**	**60% / 30% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Recon 2 (Secondary)					
DFOV	**22**	**22**	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Full**	**Full**	**Full**	**Full**	**Full**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Pediatric Cervical Spine 13.1.11/13.2.11/13.4.11/13.6.11/13.8.11

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, neck pain, cervical stenosis, radiculopathy, fracture, evaluate fixation hardware

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Patient Positioning:
  - Warning: Do not flex or extend the neck if there has been recent spine trauma or if the patient is in a C-Spine trauma collar.
  - If no recent trauma, tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop.
  - The shoulders should be pulled down as much as possible
- Remove all metallic and high-density objects from the scanning area.
- Post T and L Spine Myelogram patients: Please remember to roll the patient 360 degrees before scanning in order to distribute the contrast evenly in the spinal canal.

IV Contrast Parameters

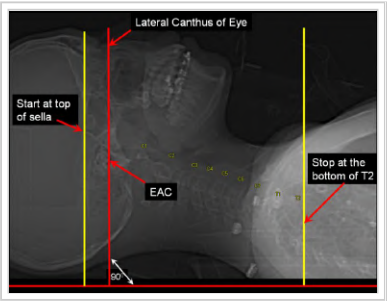
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kg (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) of Iohexol 300 mgI/mL	2 mL/sec

Field of View

Preferred 16cm

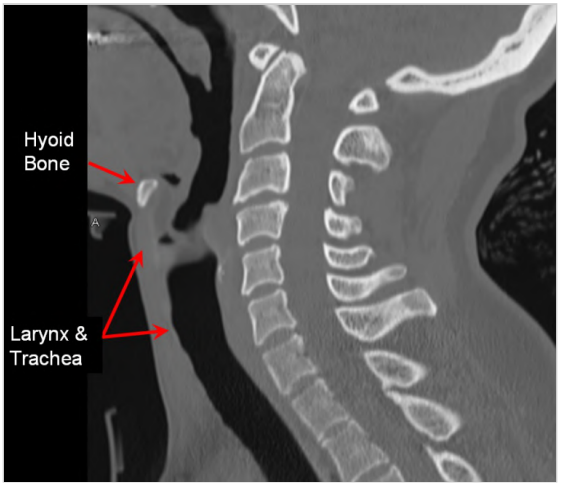
Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT Cspine without: Scan from the top of the sella to the bottom of T2
- Series 3 - CT Cspine with: Scan from the top of the sella to the bottom of T2
  - Smart Prep: Place ROI on the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 8 sec (16 slice scanners), 10 sec (64 slice scanners)



Reformat Instructions

- If the patient has a lot of metal in their teeth please use the MARS recons for the reformats.
- If this is an exam solely With contrast or solely Without contrast: Please perform 2D-reformats using both the ST AND the THIN BONE.
- If this is a "With & Without" contrast study: Please perform 2D reformats using ST from the With contrast series and THIN BONE from Non-Contrast series.



Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	450/50	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	3	1.5	Coronal
CO BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	3	1.5	Sagittal
SA BONE	THIN BONE (without contrast phase)	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**100**	**120**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**100**	**120**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**0.984**	**0.984**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**39.40**	**39.40**	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(110-170)**	**(140-220)**	**(120-180)**	**(170-270)**	**(250-390)**
Manual mA	**170.0**	**210.0**	**170.0**	**250.0**	**370.0**
Noise Index	**10.2**	**11.6**	**13.0**	**11.8**	**12.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**

If metal is present, also provide the physician with these recons. (note, not all GE scanners have MARS, and MARS only works at helical pitches below 1)

	All Sizes
Recon 4 (Secondary)	
DFOV	**16**
Recon Type	**Soft**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**40**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**	**10**	**10**
Monitoring ISD (sec)	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**10**	**10**	**10**	**10**	**10**

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**0.984**	**0.984**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**39.40**	**39.40**	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(110-170)**	**(140-220)**	**(120-180)**	**(170-270)**	**(250-390)**
Manual mA	**170.0**	**210.0**	**170.0**	**250.0**	**370.0**
Noise Index	**10.2**	**11.6**	**13.0**	**11.8**	**12.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Pediatric Lumbar Spine 17.1.1/17.2.1/17.4.1/17.6.1/17.8.1/

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, neck pain, lumbar stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Remove all metallic and high-density objects from the scanning area.
- Scan from the top of T12 to the top of S2
- Post myelography patients: Please remember to roll the patient 360 degrees before scanning to distribute the contrast evenly in the spinal canal.
- **Only if both CT T and L Spines are ordered**
  - Please start scanning T and L Spines together (scanning acquisition parameters are identical so we will be saving the patients some radiation dose due to avoiding any overlap).
  - Do separate coronal and sagittal reformats and send to PACS as 2 different exams using exam split.
  - Axial images of the entire Spine (T and L) should be sent to both T and L Spine exams. Sagittal and coronal reformats for the T-Spine should go from C7 to L1, and the sag and cor reformats from the L-Spine go from T12 to S2.
  - Also include the entire T/L Spine sagittal reformat. Do not include a coronal reformat of the entire T/L Spine.

IV Contrast Parameters

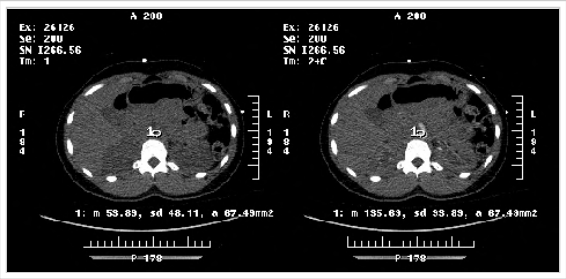
Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) Iohexol 300 mgI/mL	2 mL/sec

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT L-Spine without: Scan from the top of T12 to the top of S2
- Series 3 - CT L-Spine with: Scan from the top of T12 to the top of S2
  - Smart Prep: Place ROI on the abdominal aorta.
    - CT scan delay after arrival of contrast in abdominal aorta:
    - 8 sec (16 slice scanners), 10 sec (64 slice scanners) These diagnostic delays are built into the protocol.



Reformat Instructions

- Do not send the 0.625 mm bone images (Recon 2) to PACS
- Do 2 x 1 mm coronal and sagittal 2D-reformats.
- If exam is solely with contrast or solely without contrast: Do 2D-reformats using both the standard 1.25 mm images (Recon 1) AND the bone 0.625 mm images (Recon 2)
- If this is a “with & without” contrast study: Do not do Recons 2 and 3 on the non-contrast part
- If this is a “with & without” contrast study: Do 2D-reformats only from the contrast portion of the study using standard 1.25 mm images (Recon 1) AND bone 0.625 mm images (Recon 2)

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	2	1	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	Thin ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**110.00**	**110.00**	**41.30**	**41.30**	**41.30**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-240)**	**(50-310)**	**(30-180)**	**(60-390)**	**(80-490)**
Manual mA	**160.0**	**190.0**	**120.0**	**240.0**	**310.0**
Noise Index	**10.0**	**11.5**	**13.0**	**15.0**	**14.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

If metal is present, also provide the physician with these recons. (note, not all GE scanners have MARS, and MARS only works at helical pitches below 1)

	All Sizes
Recon 4 (Secondary)	
DFOV	**16**
Recon Type	**Soft**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**10**	**10**	**10**	**10**	**10**
Monitoring Delay (sec)	**20**	**20**	**20**	**20**	**20**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**10**	**10**	**10**	**10**	**10**

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**110.00**	**110.00**	**41.30**	**41.30**	**41.30**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-240)**	**(50-310)**	**(30-180)**	**(60-390)**	**(80-490)**
Manual mA	**160.0**	**190.0**	**120.0**	**240.0**	**310.0**
Noise Index	**10.0**	**11.5**	**13.0**	**15.0**	**14.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

If metal is present, also provide the physician with these recons. (note, not all GE scanners have MARS, and MARS only works at helical pitches below 1)

	All Sizes
Recon 4 (Secondary)	
DFOV	**16**
Recon Type	**Soft**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Pediatric Thoracic Spine 17.1.2/17.2.2/17.4.2/17.6.2/17.8.2

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Trauma, thoracic pain, thoracic stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Remove all metallic and high-density objects from the scanning area.
- Post myelography patients: Please remember to roll the patient 360 degrees before scanning to distribute the contrast evenly in the spinal canal.
- **Only if both CT T and L spines are ordered**
  - Please start scanning T and L spines together (scanning acquisition parameters are identical so we will be saving the patients some radiation dose due to avoiding any overlap).
  - Do separate coronal and sagittal reformats and send to PACS as 2 different exams using exam split.
  - Axial images of the entire Spine (T and L) should be sent to both T and L Spine exams. Sagittal and coronal reformats for the T-Spine should go from C7 to L1, and the sag and cor reformats from the L-Spine go from T12 to S2.
  - Also include the entire T/L Spine sagittal reformat. Do not include a coronal reformat of the entire T/L Spine.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
0-80 kgs (0-175 lbs)	1.5 mL/kg (0.7 mL/lbs) Iohexol 300 mgI/mL	2 mL/sec

Field of View

Preferred 16cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT T-Spine without: Scan from the top of C7 to the bottom of L1
- Series 3 - CT T-Spine with: Scan from the top of C7 to the bottom of L1
  - Smart Prep: Place ROI on the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 8 sec (16 slice scanners), 10 sec (64 slice scanners) These diagnostic delays are built into the protocol.

Reformat Instructions

- Do not send the 0.625 mm bone images (Recon 2) to PACS
- Do 2 x 1 mm coronal and sagittal 2D-reformats.
- If exam is solely with contrast or solely without contrast: Do 2D-reformats using both the standard 1.25 mm images (Recon 1) AND the bone 0.625 mm images (Recon 2)
- If this is a “with & without” contrast study: Do not do Recons 2 and 3 on the non-contrast part
- If this is a “with & without” contrast study: Do 2D-reformats only from the contrast portion of the study using standard 1.25 mm images (Recon 1) AND bone 0.625 mm images (Recon 2)

Reformats

With or Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	450/50	2	1	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	2	1	Coronal
SA ST	Thin ST	Manual	Average	450/50	2	1	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	2	1	Sagittal

With and Without Contrast

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Coronal
CO BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Coronal
SA ST	THIN ST (with contrast phase)	Manual	Average	450/50	2	1	Sagittal
SA BONE	THIN BONE (with contrast phase)	Manual	Average	2500/350	2	1	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**110.00**	**110.00**	**41.30**	**41.30**	**41.30**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-240)**	**(50-310)**	**(30-180)**	**(60-390)**	**(80-490)**
Manual mA	**160.0**	**190.0**	**120.0**	**240.0**	**310.0**
Noise Index	**10.0**	**11.5**	**13.0**	**15.0**	**14.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Recon 1 (Primary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

If metal is present, also provide the physician with these recons. (note, not all GE scanners have MARS, and MARS only works at helical pitches below 1)

	All Sizes
Recon 4 (Secondary)	
DFOV	**16**
Recon Type	**Soft**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
mA	**10**	**10**	**10**	**10**	**10**
Monitoring Delay (sec)	**20**	**20**	**20**	**20**	**20**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**10**	**10**	**10**	**10**	**10**

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**110.00**	**110.00**	**41.30**	**41.30**	**41.30**
Rotation Time (s)	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-240)**	**(50-310)**	**(30-180)**	**(60-390)**	**(80-490)**
Manual mA	**160.0**	**190.0**	**120.0**	**240.0**	**310.0**
Noise Index	**10.0**	**11.5**	**13.0**	**15.0**	**14.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Recon 1 (Primary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**
Recon 3 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

If metal is present, also provide the physician with these recons. (note, not all GE scanners have MARS, and MARS only works at helical pitches below 1)

	All Sizes
Recon 4 (Secondary)	
DFOV	**16**
Recon Type	**Soft**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**60% / 30% / High**
Slice Thickness (mm)	**1.25**
Interval (mm)	**0.625**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Chest - Standard (Routine and High-Resolution) 5.1/5.2/5.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate mediastinal abnormality, lung cancer, lymphoma, esophageal carcinoma, metastases, empyema, pleural effusion, lung nodules, pectus excavatum and chest wall lesion. This protocol also replaces the traditional HRCT of the Chest, with optional additional series as indicated.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

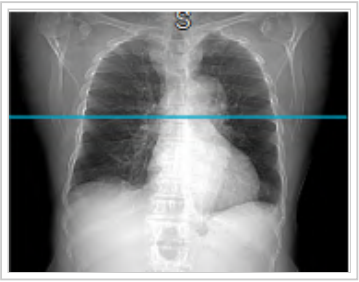
Patient Weight	Contrast Dosage	Injection Rate
All Adults	75 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	3 mL/sec

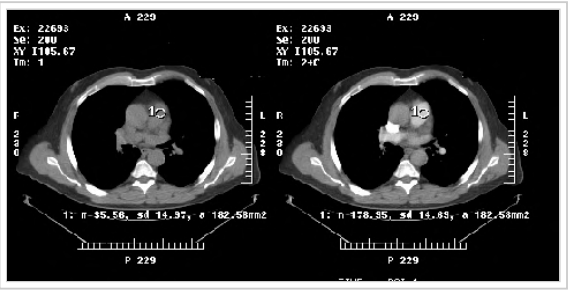
Field of View

Small as appropriate including all of breasts and chest wall.

Scan Description

- Series 1 - PA and lateral scout: from lower neck to diaphragm on inspiration.
- Series 2 - Helical Inspiration
  - Scan Phase: Start just above the lung apices and extend through the lung bases. It there is a history of or suspected lung cancer, include all of the adrenal glands.
  - Smart Prep-Monitor Phase (if giving IV contrast): Center over the pulmonary artery, threshold 100 H.U. No greater than a 50 second delay. For pleural tumor indications, a fixed 60 second delay should be used (i.e. do not use smart Prep in this case, the radiologist will specifically order a fixed delay if required).





- Series 3 (optional) - Sequential/Axial Supine Expiration (only if requested by radiologist) Start just above the lung apices and extend through the lung bases. These scans have a slice thickness of 1.25mm and an interval of 20mm.

- Series 4 (optional) PA and lateral scout (prone): from lower neck to diaphragm on inspiration.
- Series 5 (optional) – Sequential/Axial Prone Inspiration (only if requested by radiologist): Start at carina and extend to lung bases

Reformat Instructions

The axial MIP, CO, and SA reformats are set-up for DMPR.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
MIPS	THIN ST	DMPR	MIP	1500/-700	10	5	axial
SA	LUNG	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	LUNG	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

- Send the entire study to PACS (ALI_Store) including the Dose Information Slide.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	40
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	15	15	15
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	100	100	100
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-690)**	**(45-730)**	**(30-600)**
Manual mA	**430.0**	**360.0**	**350.0**
Noise Index	**12.0**	**14.0**	**18.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**1.25**	**1.25**	**1.25**
Detector Rows	**2.0**	**2.0**	**2.0**
Detector Configuration	**2x0.625**	**2x0.625**	**2x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**1.30**	**1.30**	**1.30**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-700)**	**(45-730)**	**(35-610)**
Manual mA	**440.0**	**370.0**	**350.0**
Noise Index	**21.0**	**24.0**	**31.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**20**	**20**	**20**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**20**	**20**	**20**

Series 4, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 5, Scan Phase

	Small	Medium	Large
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**1.25**	**1.25**	**1.25**
Detector Rows	**2.0**	**2.0**	**2.0**
Detector Configuration	**2x0.625**	**2x0.625**	**2x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**1.30**	**1.30**	**1.30**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-700)**	**(45-730)**	**(35-610)**
Manual mA	**440.0**	**370.0**	**350.0**
Noise Index	**21.0**	**24.0**	**31.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**20**	**20**	**20**

Series 5, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**20**	**20**	**20**

Chest - Low Dose Follow-up/Screening 5.10/5.11/5.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Follow-up of mediastinal abnormality, lung cancer, lymphoma, esophageal carcinoma, metastases, empyema, pleural effusion, lung nodules, and chest wall lesion.

Video for this protocol (low dose f/u)

Also used for Lung Cancer Screening.

Video for this protocol (screening)

Oral Contrast

None

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

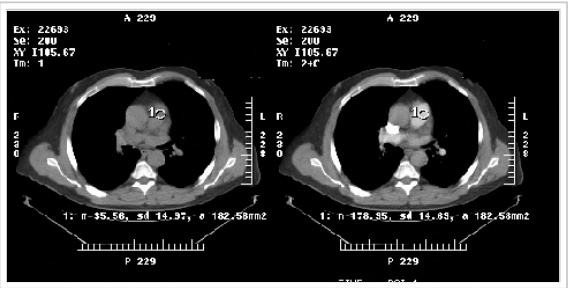
Patient Weight	Contrast Dosage	Injection Rate
All Adults	75 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	3 mL/sec

Field of View

Small as appropriate including all of breasts and chest wall.

Scan Description

- Series 1 - PA and lateral scout: from lower neck to diaphragm on inspiration.
- Series 2 - Helical Inspiration
  - Scan Phase: Start just above the lung apices and extend through the lung bases. It there is a history of or suspected lung cancer, include all of the adrenal glands.
  - Smart Prep-Monitor Phase (if giving IV contrast): Center over the pulmonary artery, threshold 100 H.U. No greater than a 50 second delay.



Reformat Instructions

The axial MIP, CO, and SA reformats are set-up for DMPR.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
MIPS	THIN ST	DMPR	MIP	1500/-700	10	5	axial
SA	LUNG	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	LUNG	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

- Send the entire study to PACS (ALI_Store) including the Dose Information Slide.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	40
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Smart Prep

	Small	Medium	Large
mA	40	40	40
Monitoring Delay (sec)	15	15	15
Monitoring ISD (sec)	3	3	3
Enhancement Threshold (HU)	100	100	100
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**110.00**	**110.00**	**110.00**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-360)**	**(35-540)**	**(35-630)**
Manual mA	**220.0**	**270.0**	**360.0**
Noise Index	**18.0**	**20.5**	**26.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Chest - CTPA for PE 5.16/5.17/5.18

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for known or suspected pulmonary embolism.

Video for this protocol

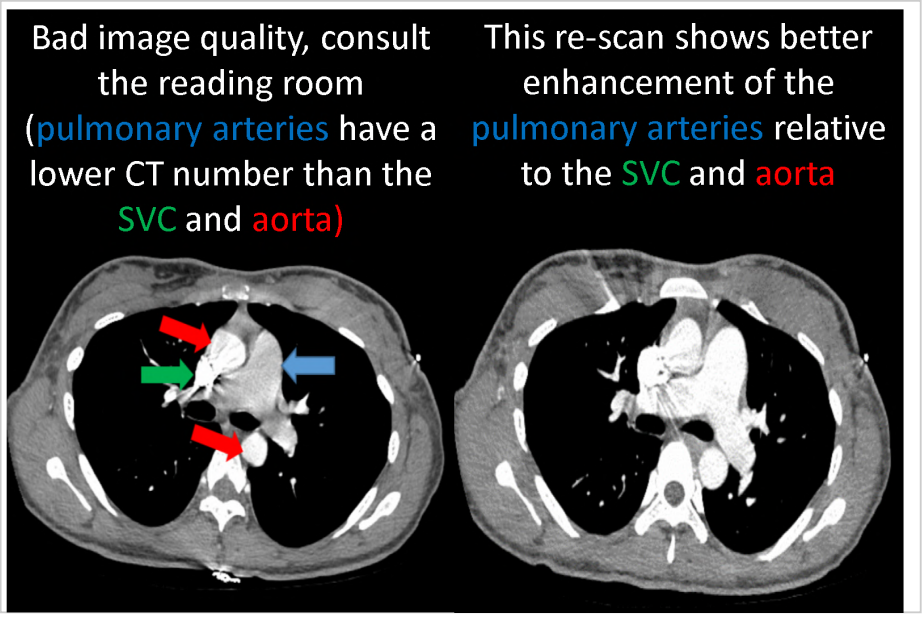
Oral Contrast

None

Pre-Scan Instructions

Practice the 3 breaths for scouts, smart prep, and the actual helical scan, we do not want to induce a transient interruption of contrast (TIC) which would can mimic a PE and or produce an indeterminate exam. Please give the patient these EXACT instructions: **"When you take your last breath before the exam, take a full breath but gently hold. Do not bear down, tense up, or strenuously hold your breath. This exam will be over in about 4 seconds from when we tell you hold your breath to when you may breath again.**

We would like to visualize contrast in the pulmonary arteries and aorta because this is a double rule out protocol. If you see the contrast in the pulmonary arteries at a much lower intensity than the SVC and aorta, the patient likely had a TIC which kept the PA from enhancing correctly. This is not a scan timing issue, but an issue with un-opacified blood entering the heart faster from the IVC than opacified blood from the SVC caused by a pressure imbalance between the thorax and abdomen. This is why the breathing instructions we provide above are critical for this exam. As a guidance tool, a good PE exam will have an enhancement threshold of 300 HU.



If your exam looks like the one shown here on the left, please call the reading room and have them review the images before letting the patient leave the CT suite.

Ventilated patients will be scanned on inspiration to ensure safety of RT Staff.

IV Contrast Parameters

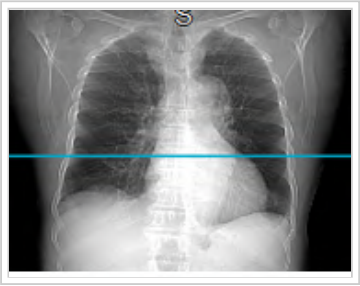
Weight Ranges	Contrast Dosage	Injection Rate
<300 lbs. (<140 kg)	80 mL Iohexol 300 mgI/mL + 10 mL NaCl flush	5mL/sec
>300 lbs (>140 kg)	80 mL Iopamidol 370 mgI/mL (Isovue) + 10 mL NaCl flush	5mL/sec
18 G Antecubital IV Started in the Right Arm		

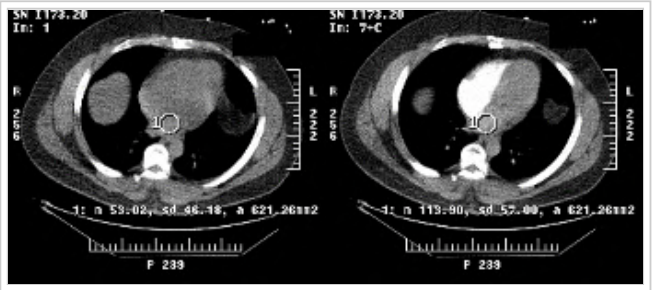
Field of View

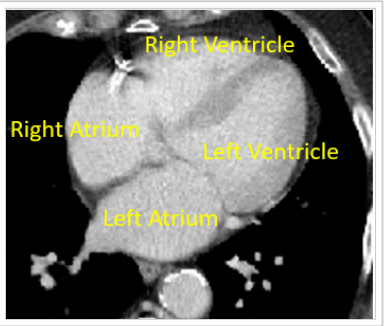
Smallest possible to include all of chest including axillae and breasts.

Scan Description

- Series 1 - PA and lateral scouts: from lower neck to diaphragm using the suspension breathing instructions
- Series 2 –Helical Scan
  - Scan Phase: Start scan above lung apices (first rib) and scan through lung bases/costophrenic angles with IV Contrast. Inspiratory breathing instructions are on, remind the patient not to bear down or strain.
  - Smart Prep-Monitor Phase: Place ROI on Lt atrium; Watch for atrial filling with contrast on the bolus tracking scan and then start using manual start, no delay is needed.







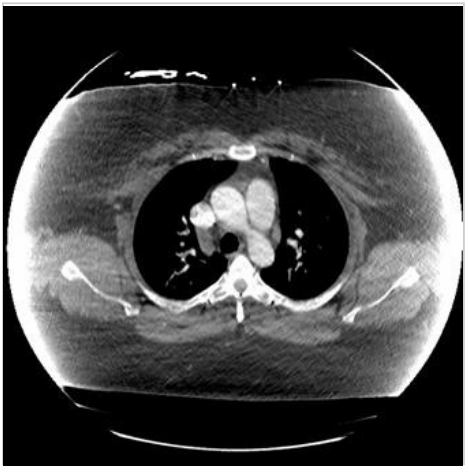
Adjustments for Bariatric PE and Cardiac Studies We do not have a bariatric protocol for chest PE or cardiac (retrospectively or prospectively gated coronaries) studies. Our large protocol is already designed to deliver a higher maximum dose than the medium and small adult protocols, but it uses 120 kV to maximize iodine contrast. Other large adult protocols that are not angiograms use 140 kV for large adults. Therefore, for bariatric patients who 1. **fill the scout view** or 2. **max out the mA table** please increase the kV from 120 kV to 140 kV.

Note: If you know the patient is likely to max out the mA table before taking the scout, you should increase the scout kV from 120 to 140.

Example of a patient **filling the scout view**

Example patient **filling the scout AP view**

Example patient **filling the scout lateral view**



Resulting poor image quality from a patient who **fills the scout**

Reformat Instructions

No special reformat instructions, see the reformat section for basic details.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN LUNG	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	THIN LUNG	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.
MIPS	THIN ST	DMPR	MIP	920/125	10	5	Axial

Networking

- Send the entire study to PACS (ALI_Store) including the Dose Information Slide.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**20**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**2.0**	**2.0**	**2.0**
Monitoring ISD (sec)	**1.0**	**1.0**	**1.0**
Enhancement Threshold (HU)	**60**	**60**	**60**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.6**	**0.5**	**0.8**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-520)**	**(40-680)**	**(35-610)**
Manual mA	**260.0**	**340.0**	**370.0**
Noise Index	**26.0**	**34.0**	**38.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Chest - Dynamic 3D Airway 5.70/5.71/5.72

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for airway for stenosis, tumor, tracheo(broncho)malacia.

Oral Contrast

None

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan. **Coach patient again before expiration. Expiratory scan should be performed during *forced exhalation* (use manual breathing instructions)**

IV Contrast Parameters

Patient Weight	Contrast Dosage	Injection Rate
All Adults	100 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	4 mL/sec
Only if requested by Radiologist for known or suspected central airway tumor.		

Field of View

Smallest possible to include all of chest including axillae and breasts.

Scan Description

- Series 1 - PA & lateral scouts: from mid-neck to diaphragm on inspiration.
- Series 2 - Inspiration: Start scan mid-neck C3 – C4 and extend through the diaphragm to include entirety of lungs.
- Series 3 - Dynamic forced expiration: Start scan mid-neck C3 – C4 and extend through top of diaphragm

Reformat Instructions

No reformats unless requested by a Radiologist

Reformats

None.

Networking

- Send the entire study to PACS (ALI_Store) including the Dose Information Slide.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-690)**	**(45-730)**	**(30-600)**
Manual mA	**430.0**	**360.0**	**350.0**
Noise Index	**12.0**	**14.0**	**18.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**110.00**	**110.00**	**110.00**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-360)**	**(35-540)**	**(35-630)**
Manual mA	**220.0**	**270.0**	**360.0**
Noise Index	**18.0**	**20.5**	**26.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Chest - Standard (Routine and High-Resolution) 15.1.1/15.2.1/15.4.1/15.6.1/15.8.1

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Chest with contrast: Initial evaluations for metastatic disease.

Chest without contrast: Follow-up osteosarcoma mets

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

IV Contrast Parameters

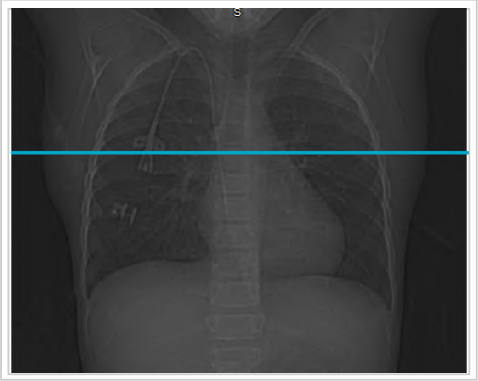
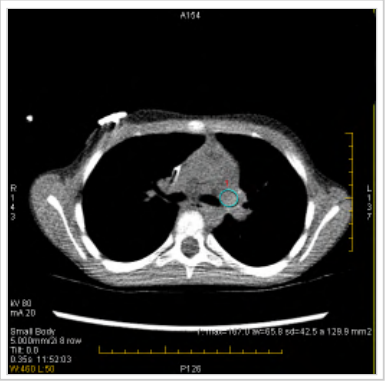
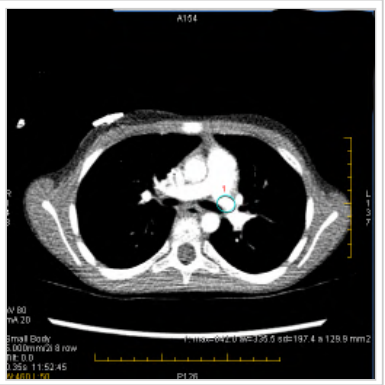
Patient Weight	Contrast Dosage	Injection Rate
Peds < 37 kg (81.5 lbs)	2 mL/kg of Iohexol 300 mgI/mL + 10 mL NaCl flush	1.5- 2 mL/sec
Peds > 37kg (81.5 lbs)	75 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 2 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

Field of View

Small as possible, including all of chest wall

Scan Description

- Series 1 – PA & Lateral Scout: from base of neck through lung bases with inspiration
- Series 2 – Scan Phase: Scan from just above the lung apices and extend through lung bases with full inspiration.
  - Smart Prep – Monitor Phase: center over the pulmonary artery. Once it reaches the proper threshold, hit scan phase. The scan will then have a 12 second diagnostic delay built in. If enhancement threshold is not reach by 50 seconds, start the scan.

- Series 3 (optional) - Sequential/Axial Supine Expiration (only if requested by radiologist) Start just above the lung apices and extend through the lung bases. These scans have a slice thickness of 1.25 mm and an interval of 10 mm.

Reformat Instructions

Use DMPR on recon 2 and recon 4

- Recon 2 is the Soft Tissue Recon
- Recon 4 is the Lung Recon

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS CHEST	THIN ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS CHEST	THIN ST	DMPR	Average	450/50	4	2	coronal
PEDS SA CHEST	THIN LUNG	DMPR	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	THIN LUNG	DMPR	Average	1500/-700	4	2	coronal
AX MIPS	THIN ST	Manual	MIP	1500/-700	10	5	Axial

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have "auto prescription", you can use a single profile to span all pediatric patient sizes for both phases of this protocol. Use a NI of 14.5 and the "Routine (Peds)" profile shown below.

Profile name: "Routine (Peds)"	Min AP+Lat	Max AP+Lat	kV	SFOV	Rotation time (s)	Pitch	min mA	max mA
	0	31	70	Small Body/Cardiac Small	0.28	1.531:1	80	500
	31	54	80	Small Body/Cardiac Small	0.35	0.984/0.992:1	90	600
	54	96	100	Medium Body/Cardiac Medium	0.35	1.375:1	110	710
NI adjustment is "Moderate Decrease" below reference patient size and "Small Increase" above reference patient size.								
Clinical task is "Soft Tissue +C Low Contrast"								
With auto prescription turned on, the scanner will use the scouts to automatically populate the acquisition values to one of the rows listed above. This is an automatic process.								

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**12**	**12**	**12**	**12**	**12**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-250)**	**(60-390)**	**(90-540)**	**(110-670)**
Manual mA	**120.0**	**160.0**	**250.0**	**340.0**	**430.0**
Noise Index	**9.0**	**10.0**	**11.5**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 4 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 3, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 4, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-250)**	**(60-390)**	**(90-540)**	**(110-670)**
Manual mA	**120.0**	**160.0**	**250.0**	**340.0**	**430.0**
Noise Index	**9.0**	**10.0**	**11.5**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 4, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Peds Chest Dynamic 3D Airway 15.1.2/15.2.2/15.4.2/15.6.2/15.8.2

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for airway for stenosis, tumor, tracheo(broncho)malacia.

Oral Contrast

None

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan. **Coach patient again before expiration. Expiratory scan should be performed during *forced exhalation* (use manual breathing instructions)**

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<100 lbs)	2 mL/kg Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
45-65 kg (100-140 lbs)	80 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
>65 kg (>140 lbs)	Patients above 65 kg use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 30mL NaCl flush.	1.5 - 3 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

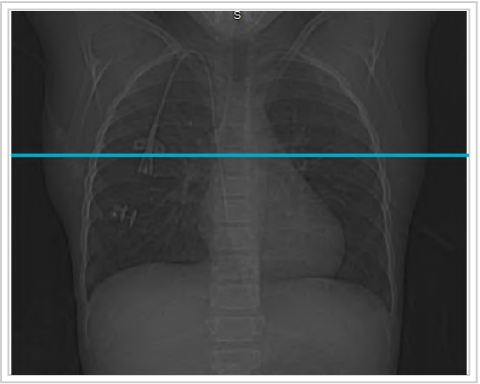
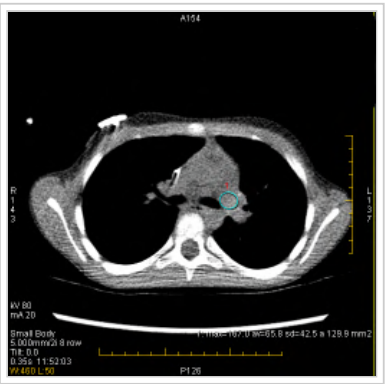
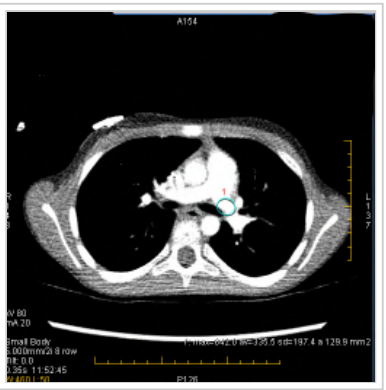
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Small as possible, including all of chest wall

Scan Description

- **Series 1** - PA & lateral scouts: from lower neck to diaphragm on inspiration.
- **Series 2** - Inspiration: Start scan mid-neck C3 – C4 and extend through the diaphragm to include entirety of lungs. If the patient needs IV contrast use this phase.
  - Smart Prep – Monitor Phase: center over the pulmonary artery. Once it reaches the proper threshold, hit scan phase. The scan will then have a 12 second diagnostic delay built in. If enhancement threshold is not reach by 50 seconds, start the scan.

- **Series 3** - Dynamic forced expiration: Start scan mid-neck C3 – C4 and extend through top of diaphragm
  - Positioning: Supine for both the Inspiration and Expiration series.

Reformat Instructions

No reformats unless requested by a Radiologist

Reformats

None.

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**12**	**12**	**12**	**12**	**12**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-250)**	**(60-390)**	**(90-540)**	**(110-670)**
Manual mA	**120.0**	**160.0**	**250.0**	**340.0**	**430.0**
Noise Index	**9.0**	**10.0**	**11.5**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 4 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-250)**	**(60-390)**	**(90-540)**	**(110-670)**
Manual mA	**120.0**	**160.0**	**250.0**	**340.0**	**430.0**
Noise Index	**9.0**	**10.0**	**11.5**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 4 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Chest Pectus 15.1.3/15.2.3/15.4.3/15.6.3/15.8.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Eval for chest wall deformities, Haller index and corrections indices in pectus excavatum.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

IV Contrast Parameters

None

Field of View

Small as possible, including all of rib cage

Scan Description

- Series 1 – PA & Lateral Scout: from base of neck through lung bases with suspension.
- Series 2 – Scan from just above the lung apices and extend through the 12th rib so as to image the entire bony thorax. Scan using suspension (stop breathing).

Reformat Instructions

Use DMPR on recon 2 and recon 4

- Recon 2 is the Soft Tissue Recon
- Recon 4 is the Lung Recon

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS CHEST	THIN ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS CHEST	THIN ST	DMPR	Average	450/50	4	2	coronal
PEDS SA CHEST	THIN LUNG	DMPR	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	THIN LUNG	DMPR	Average	1500/-700	4	2	coronal
AX MIPS	THIN ST	Manual	MIP	1500/-700	10	5	Axial

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	80	100
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	80	100
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	80	80	80	80	80
Detector Rows	128.0	128.0	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625	128x0.625	128x0.625
Scan FOV	Small Body	Small Body	Small Body	Medium Body	Medium Body
Pitch	1.531	1.531	1.531	1.531	1.375
Speed (mm/rot)	122.50	122.50	122.50	122.50	110.00
Rotation Time (s)	0.28	0.28	0.28	0.28	0.28
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(20-140)	(25-170)	(45-270)	(90-580)	(100-650)
Manual mA	90.0	110.0	170.0	360.0	420.0
Noise Index	11.0	12.5	13.5	15.5	15.0
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1900/-475**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 4 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Chest CTPA for PE 15.1.4/15.2.4/15.4.4/15.6.4/15.8.4

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

known or suspected pulmonary embolism.

Oral Contrast

None

Pre-Scan Instructions

- Practice the 3 breaths for scouts, smart prep, and the actual helical scan, we do not want to induce a Valsalva which would push the contrast out of the area of interest. Ask patient to cough just prior to the exam. Ask patient to breathe quietly during exam and then stop breathing for image acquisition. Inform the patient to not bear up, tense up or strenuously hold their breath. Scan ventilated patients at full inspiration.
- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-55

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<88 lbs)	2 mL/kg of Iohexol 300 mgI/mL + 10 mL NaCl flush	2 mL/sec
40-65 kg (88-143 lbs)	80 mL Iohexol 300 mgI/mL + 10 mL NaCl flush	3 mL/sec
>65 kg (>143 lbs)	Patients above 65 kilos use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 10mL NaCl flush.	4 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

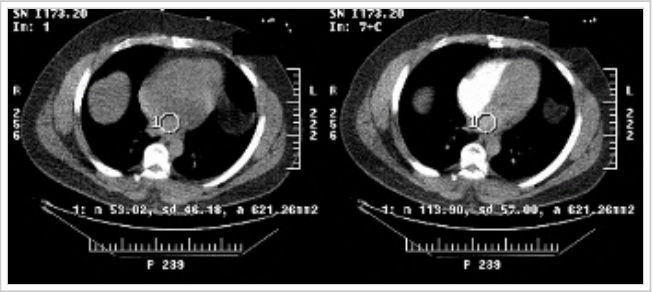
Field of View

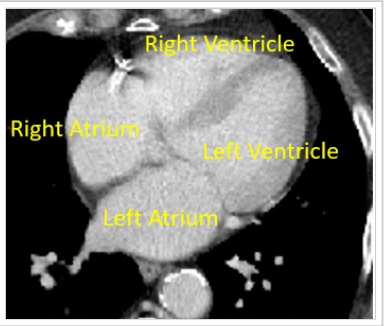
Small as possible, including all of chest wall

Scan Description

- Series 1 - PA and lateral scouts: from lower neck to diaphragm using the suspension breathing instructions
- Series 2 –Helical Scan
  - Scan Phase: Start scan above lung apices (first rib) and scan through lung bases/costophrenic angles with IV Contrast. Inspiratory breathing instructions are on, remind the patient not to bear down or strain.

- Smart Prep-Monitor Phase: Place ROI on Lt atrium; Watch for atrial filling with contrast on the bolus tracking scan and then start using manual start, no delay is needed.





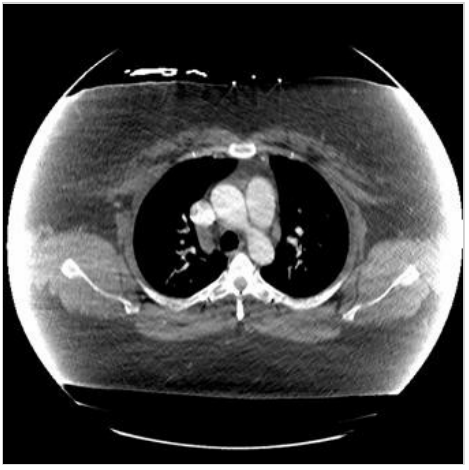
Adjustments for Bariatric PE and Cardiac Studies We do not have a bariatric protocol for chest PE or cardiac (retrospectively or prospectively gated coronaries) studies. Our large protocol is already designed to deliver a higher maximum dose than the medium and small adult protocols, but it uses 120 kV to maximize iodine contrast. Other large adult protocols that are not angiograms use 140 kV for large adults. Therefore, for bariatric patients who 1. **fill the scout view** or 2. **max out the mA table** please increase the kV from 120 kV to 140 kV.

Note: If you know the patient is likely to max out the mA table before taking the scout, you should increase the scout kV from 120 to 140.

Example of a patient **filling the scout view**

Example patient **filling the scout AP view**

Example patient **filling the scout lateral view**



Resulting poor image quality from a patient who **fills the scout**

Reformat Instructions

Use DMPR on recon 2 (thins)

- Recon 2 is the Lung Recon

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
PEDS SA CHEST	THIN LUNG	Manual	MIP	1500/-700	4	2	sagittal
PEDS CO CHEST	THIN LUNG	Manual	MIP	1500/-700	4	2	coronal
AX MIPS	THIN ST	Manual	MIP	1500/-700	10	5	Axial

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**
Monitoring ISD (sec)	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-250)**	**(60-390)**	**(90-540)**	**(110-670)**
Manual mA	**120.0**	**160.0**	**250.0**	**340.0**	**430.0**
Noise Index	**9.0**	**10.0**	**11.5**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Routine Chest/Abd/Pelvis 15.1.5/15.2.5/15.4.5/15.6.5/15.8.5

Pediatric patients between the age of 18-20 yrs: to be scanned C/A/P in one scan. Do not scan using two groups.

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Neoplasm, fever of unknown origin, infection. Metasatic disease workup/follow-up.

Video for this protocol

Oral Contrast

These are target volumes for oral contrast. If the child is vomiting or otherwise unable to tolerate the total amount, it can obviously be decreased. For optimal interpretation of these scans, encourage the above amounts.

Hydrate ER patient if time allows

Mix 4mL Iohexol 300 (Omnipaque) in 200mL of a clear liquid.

Age	Weight (lbs)	Total Oral Contrast Quantity
0 - 1	10 - 25	100 mLs
1 - 3	20 - 40	200 mLs
3 - 5	30 - 60	400 mLs
5 - 10	40 - 90	600 mLs
11+	over 90	800 mLs +

Pre-Scan Instructions

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<100 lbs)	2 mL/kg Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
45-65 kg (100-140 lbs)	80 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
>65 kg (>140 lbs)	Patients above 65 kg use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 30mL NaCl flush.	1.5 - 3 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

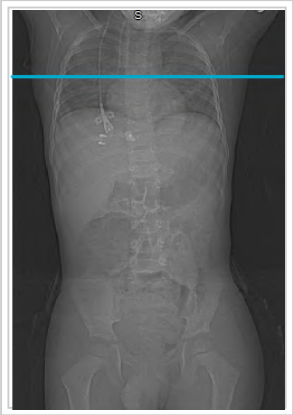
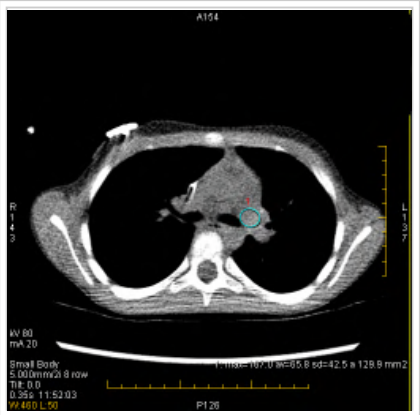
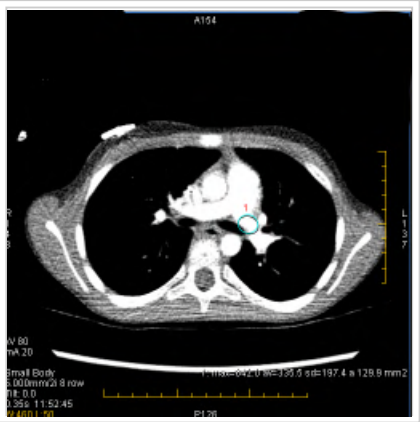
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from base of neck through pubic symphysis
- Series 2 – Helical scan: Start just above the lung apices. For a Chest/Abdomen, end at the iliac crests and for a full CAP end at the pubic symphysis. Scan Chest/ Abdomen/Pelvis in portal venous phase.
  - Coverage: Start just above the lung apices. For a Chest/Abdomen, end at the iliac crests and for a full CAP end at the pubic symphysis.
  - If the patient requires an Adult Medium or Large protocol, please delete the Abd/Pel group and extend the chest through the pelvis, scan in ONE group, not two. Please add a 20 second (all Non-Revolution CT 256) or 27 seconds (Revolution CT 256) diagnostic delay to the smart prep. You may want to turn off your DMPR's and manually preform the reformats.
  - Smart Prep – Monitor Phase: Center over the pulmonary artery. There is a built in diagnostic delay of 20 seconds after the smart prep enhancement threshold is reached.

Reformat Instructions

Use DMPR on recon 2 (thins)

- Recon 2 is the Soft Tissue Recon

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
PEDS SA CHEST	THIN LUNG	Manual	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	THIN LUNG	Manual	Average	1500/-700	4	2	coronal
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal
AX MIPS	THIN ST	Manual	MIP	1500/-700	10	5	Axial

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have "auto prescription", you can use a single profile to span all pediatric patient sizes for this protocol. Use a NI of 14.5 and the "Routine (Peds)" profile shown below.

Profile name: "Routine (Peds)"	Min AP+Lat	Max AP+Lat	kV	SFOV	Rotation time (s)	Pitch	min mA	max mA
	0	31	70	Small Body/Cardiac Small	0.28	1.531:1	80	500
	31	54	80	Small Body/Cardiac Small	0.35	0.984/0.992:1	90	600
	54	96	100	Medium Body/Cardiac Medium	0.35	1.375:1	110	710
NI adjustment is "Moderate Decrease" below reference patient size and "Small Increase" above reference patient size.								
Clinical task is "Soft Tissue +C Low Contrast"								
With auto prescription turned on, the scanner will use the scouts to automatically populate the acquisition values to one of the rows listed above. This is an automatic process.								

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	80	100
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	80	100
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	20	40	40	40	40
Monitoring Delay (sec)	20.0	20.0	20.0	20.0	20.0
Monitoring ISD (sec)	2.0	2.0	2.0	2.0	2.0
Enhancement Threshold (HU)	30	30	30	30	30
Diagnostic Delay	20	20	20	20	20

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**1.375**	**1.375**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**110.00**	**110.00**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.5**	**0.5**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-270)**	**(50-340)**	**(90-530)**	**(90-570)**	**(110-710)**
Manual mA	**170.0**	**210.0**	**340.0**	**360.0**	**460.0**
Noise Index	**7.5**	**9.0**	**10.0**	**11.0**	**11.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1900/-475**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 4 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Trauma Chest/Abd/Pelvis 15.1.6/15.2.6/15.4.6/15.6.6/15.8.6

Note: The pediatric Trauma CAP protocol can still be used to retro recon the T Spine. In other words, you should NEVER scan both a Trauma pediatric CAP and then a T Spine protocol.

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Blunt or penetrating trauma

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Clamp Foley catheter prior to exam. Make sure to place Foley below the level of the bladder.
- Image with arms up if possible.
- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-55

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<100 lbs)	2 mL/kg Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
45-65 kg (100-140 lbs)	80 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
>65 kg (>140 lbs)	Patients above 65 kg use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 30mL NaCl flush.	1.5 - 3 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

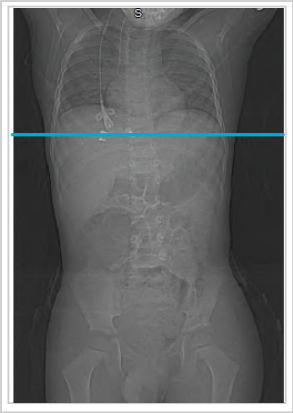
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

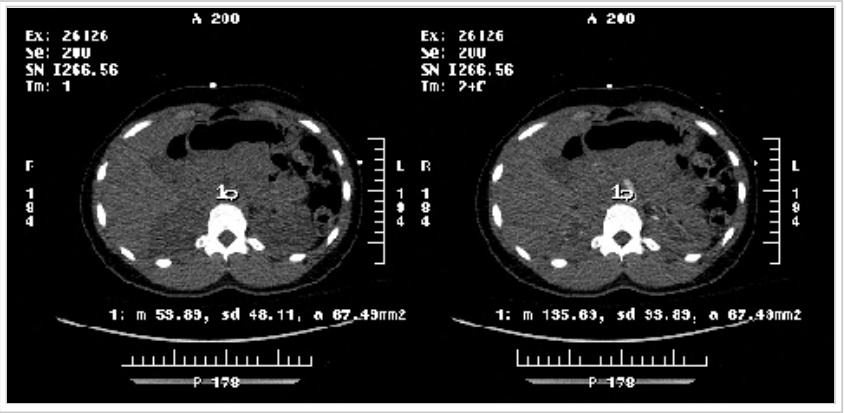
Field of View

As small as possible

Scan Description

- **Series 1** – PA & Lateral Scout: from base of neck through pubic symphysis
- **Series 2** – Helical Scan – Helical Scan: Performed in 2 groups: Chest (1st group) – Abdomen and Pelvis (2nd group)
  - 1st group, start at the base of the lungs (diaphragm) and scan to the top of the lungs (apex)
  - 2nd group, pause 70 sec. from the start of the injection, start scan at the top of the diaphragm and end at the pubic symphysis.
- Smart Prep – Monitor Phase: Center over the liver. Put ROI in the aorta. Start scan as soon as contrast is seen in the aorta.





- **Series 3** - Delayed Scan (Optional per MD) 5-7 minute delayed scans ONLY in area of interest

Reformat Instructions

Use DMPR on recon 2 (thins)

- Recon 2 is a Soft Tissue Recon
- Recon 4 & 7 are Spine Soft Tissue Recon
- Recon 6 & 9 are Spine Bone Recon

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS CHEST	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS CHEST	Thin ST	DMPR	Average	450/50	4	2	coronal
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal

For T and L Spine reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA ST	Thin ST	Manual (spines only if ordered)	Average	450/50	2	1	sagittal
CO ST	Thin ST	Manual (spines only if ordered)	Average	450/50	2	1	coronal
SA BONE	Thin Bone	Manual (spines only if ordered)	Average	3000/300	2	1	sagittal
CO BONE	Thin Bone	Manual (spines only if ordered)	Average	3000/300	2	1	coronal

Networking

- All Images to PACS (ALI_Store).

- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**10.0**	**10.0**	**10.0**	**10.0**	**15.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Group 1, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**110.00**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.7**	**0.7**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-420)**	**(80-530)**	**(80-480)**	**(80-510)**	**(100-640)**
Manual mA	**270.0**	**330.0**	**310.0**	**320.0**	**410.0**
Noise Index	**6.0**	**6.5**	**7.5**	**8.5**	**8.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 1, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625

Recon 3 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	BonePlus	BonePlus	BonePlus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1500/-700
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 4 (Secondary)					
DFOV	16	16	16	16	16
Recon Type	Soft	Soft	Soft	Soft	Soft
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	60% / 30% / High	60% / 30% / High	60% / 30% / High	60% / 30% / High	60% / 30% / High
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 5 (Secondary)					
DFOV	16	16	16	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 6 (Secondary)					
DFOV	16	16	16	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	0.625	0.625	0.625	0.625	0.625
Interval (mm)	0.312	0.312	0.312	0.312	0.312

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 2, Group2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**110.00**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.7**	**0.7**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-420)**	**(80-530)**	**(80-480)**	**(80-510)**	**(100-640)**
Manual mA	**270.0**	**330.0**	**310.0**	**320.0**	**410.0**
Noise Index	**6.0**	**6.5**	**7.5**	**8.5**	**8.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 7 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Soft**	**Soft**	**Soft**	**Soft**	**Soft**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Recon 8 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 9 (Secondary)					
DFOV	**16**	**16**	**16**	**16**	**16**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**	**0.312**	**0.312**

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.
3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead

of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**1.375**	**1.375**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**110.00**	**110.00**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.5**	**0.5**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-270)**	**(50-340)**	**(90-530)**	**(90-570)**	**(110-710)**
Manual mA	**170.0**	**210.0**	**340.0**	**360.0**	**460.0**
Noise Index	**7.5**	**9.0**	**10.0**	**11.0**	**11.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Routine Abd/Pelvis 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Abdominal pain, r/o abscess, neoplasm, fever of unknown origin. Small bowel obstruction in patients with h/o prior surgery.

Video for this protocol

Oral Contrast

These are target volumes for oral contrast. If the child is vomiting or otherwise unable to tolerate the total amount, it can obviously be decreased. For optimal interpretation of these scans, encourage the above amounts.

Hydrate ER patient if time allows

Mix 4mL Iohexol 300 (Omnipaque) in 200mL of a clear liquid.

Age	Weight (lbs)	Total Oral Contrast Quantity
0 - 1	10 - 25	100 mLs
1 - 3	20 - 40	200 mLs
3 - 5	30 - 60	400 mLs
5 - 10	40 - 90	600 mLs
11+	over 90	800 mLs +

Pre-Scan Instructions

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<100 lbs)	2 mL/kg Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
45-65 kg (100-140 lbs)	80 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
>65 kg (>140 lbs)	Patients above 65 kg use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 30mL NaCl flush.	1.5 - 3 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

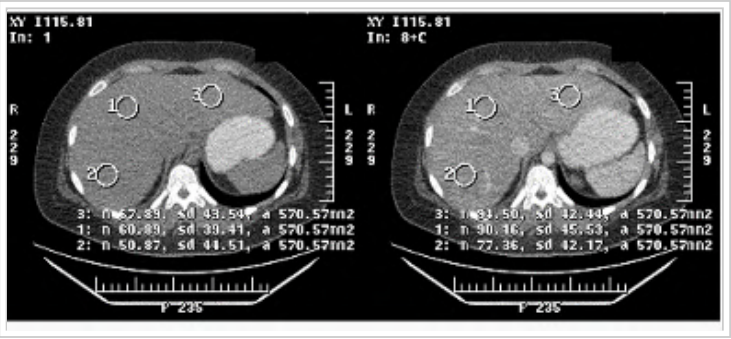
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from diaphragm through pubic symphysis.
- Series 2 – Scan Phase: Start scan just above the diaphragm, end just below the pubic symphysis. If patient has inflammatory bowel disease, scan through perineum.
    - Smart Prep – Monitor Phase: Center over the liver. Place 3 ROIs in the liver. If enhancement threshold is not reach by 70 seconds, start the scan.



Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS	Thin ST	DMPR	Average	500/80	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	500/80	4	2	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have "auto prescription", you can use a single profile to span all pediatric patient sizes for this protocol. Use a NI of 14.5 and the "Routine (Peds)" profile shown below.

Profile name: "Routine (Peds)"	Min AP+Lat	Max AP+Lat	kV	SFOV	Rotation time (s)	Pitch	min mA	max mA
	0	31	70	Small Body/Cardiac Small	0.28	1.531:1	80	500
	31	54	80	Small Body/Cardiac Small	0.35	0.984/0.992:1	90	600
	54	96	100	Medium Body/Cardiac Medium	0.35	1.375:1	110	710
NI adjustment is "Moderate Decrease" below reference patient size and "Small Increase" above reference patient size.								
Clinical task is "Soft Tissue +C Low Contrast"								
With auto prescription turned on, the scanner will use the scouts to automatically populate the acquisition values to one of the rows listed above. This is an automatic process.								

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	80	100
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	80	100
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	20	40	40	40	40
Monitoring Delay (sec)	20.0	20.0	25.0	25.0	30.0
Monitoring ISD (sec)	2.0	2.0	2.0	2.0	2.0
Enhancement Threshold (HU)	50	50	50	50	50
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	80	80	80	80	80
Detector Rows	128.0	128.0	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625	128x0.625	128x0.625
Scan FOV	Small Body	Small Body	Small Body	Medium Body	Medium Body
Pitch	1.531	1.531	1.531	1.375	1.375
Speed (mm/rot)	122.50	122.50	122.50	110.00	110.00
Rotation Time (s)	0.28	0.28	0.28	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(40-270)	(50-340)	(90-530)	(90-570)	(110-710)
Manual mA	170.0	210.0	340.0	360.0	460.0
Noise Index	7.5	9.0	10.0	11.0	11.0
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Acute Appendicitis - Abd/Pelvis 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

RLQ pain. Evaluate for appendicitis.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<100 lbs)	2 mL/kg Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
45-65 kg (100-140 lbs)	80 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
>65 kg (>140 lbs)	Patients above 65 kg use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 30mL NaCl flush.	1.5 - 3 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

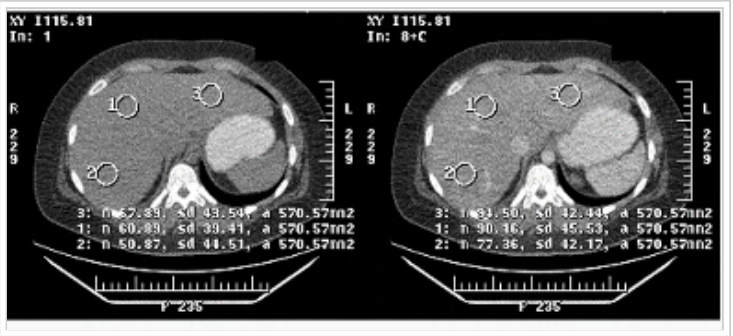
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from diaphragm through pubic symphysis
- Series 2 – Limited Coverage: Start scan at bottom of kidneys, end at pubic symphysis.
  - Smart Prep – Monitor Phase: Center over the liver. Place 3 ROIs in the liver. If enhancement threshold is not reach by 70 seconds, start the scan.



Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

This protocol uses the same acquisition parameters as the Routine Abdomen/Pelvis.

Renal Stone/Flank Pain 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Suspected urolithiasis in setting of equivocal renal/bladder ultrasound.

Video for this protocol

Oral Contrast

Give a total 800 mL of water prior to scan (A 200mL dose every 20 minutes over an hour).

Give an additional 200mL dose of water on the CT scan table.

Hydrate ER patients if time allows

Pre-Scan Instructions

- Scan with a full bladder.
- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-55

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats.

IV Contrast Parameters

None

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from diaphragm through pubic symphysis
- Series 2 – Scan from top of kidneys to base of bladder

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Same as Routine Abd/Pelvis 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Triphasic Liver 16.1.3/16.2.3/16.4.3/16.6.3/16.8.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

preoperative planning, liver tumor evaluation, evaluate hepatic artery/portal vein patency,upon surgeon request. Alternatively, MR with eovist contrast might be helpful.

Video for this protocol

Oral Contrast

Give a total 800 mL of water over the course of one hour prior to scan. Ask patient to drink slowly and steadily.

Give an additional 200mL dose of water on the CT scan table.

Pre-Scan Instructions

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<88 lbs)	2 mL/kg of Iohexol 300 mgI/mL + 30 mL NaCl flush	2 mL/sec
40-65 kg (88-143 lbs)	80 mL Iohexol 300 mgI/mL + 40 mL NaCl flush	3 mL/sec
>65 kg (>143 lbs)	Patients above 65 kilos use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 50mL NaCl flush.	4 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

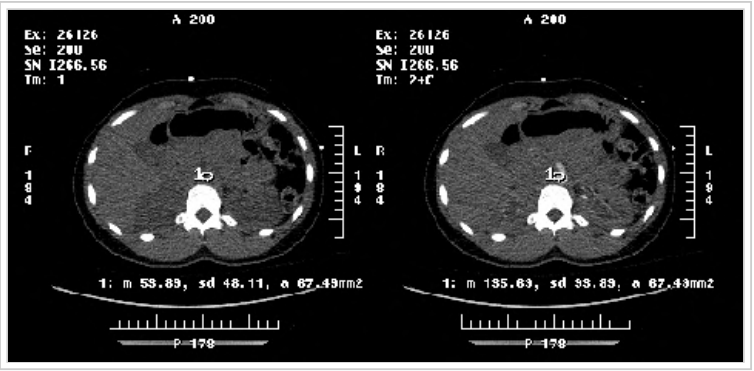
Field of View

As small as possible

Scan Description

- **Series 1** – PA and lateral scout: from diaphragm through iliac crest (or pubic symphysis if pelvis also ordered)
- **Series 2** – Helical Scan performed in 3 groups

    - 1st group - Arterial Phase: Start scan just above the liver and end just below the bottom of the liver or proximal SMA which ever is lower.
    - 2nd group - Late Arterial Phase: Start scan just below the liver (same coordinates and table positions) and end just above the liver. This group is scanned bottom up.
    - 3rd group – Portal Venous Phase: 70 seconds after the start of the injection, start scan just above the liver and end at the iliac crests for the Abdomen or at pubic symphysis for the Abdomen/Pelvis
- Smart Prep - Monitor Phase - Place ROI on the aorta at the level of mid liver. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.** Prep Group delays are pre-programmed for the Late Arterial and Portal venous phases.



Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	80	100
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	80	100
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	10	10	10	20	20
Monitoring Delay (sec)	10.0	10.0	10.0	10.0	10
Monitoring ISD (sec)	2.0	2.0	2.0	2.0	2.0
Enhancement Threshold (HU)	80	80	80	80	80
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Group 1, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	80	80	80	80	80
Detector Rows	128.0	128.0	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625	128x0.625	128x0.625
Scan FOV	Small Body	Small Body	Small Body	Medium Body	Medium Body
Pitch	1.375	1.375	0.992	0.992	0.992
Speed (mm/rot)	110.00	110.00	79.40	79.40	79.40
Rotation Time (s)	0.28	0.28	0.35	0.7	0.7
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(70-420)	(80-530)	(80-480)	(80-510)	(100-640)
Manual mA	270.0	330.0	310.0	320.0	410.0
Noise Index	6.0	6.5	7.5	8.5	8.0
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25

Series 2, Group 1, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625

Series 2, Group 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**1.375**	**1.375**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**110.00**	**110.00**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.5**	**0.5**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-270)**	**(50-340)**	**(90-530)**	**(90-570)**	**(110-710)**
Manual mA	**170.0**	**210.0**	**340.0**	**360.0**	**460.0**
Noise Index	**7.5**	**9.0**	**10.0**	**11.0**	**11.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 2, Group 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**1.375**	**1.375**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**110.00**	**110.00**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.5**	**0.5**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-270)**	**(50-340)**	**(90-530)**	**(90-570)**	**(110-710)**
Manual mA	**170.0**	**210.0**	**340.0**	**360.0**	**460.0**
Noise Index	**7.5**	**9.0**	**10.0**	**11.0**	**11.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Trauma Abd/Pelvis 16.1.4/16.2.4/16.4.4/16.6.4/16.8.4

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

blunt or penetrating trauma

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Clamp Foley catheter prior to exam. Make sure to place Foley below the level of the bladder.
- Image with arms up if possible.
- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-55

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<40 kg (<100 lbs)	2 mL/kg Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
45-65 kg (100-140 lbs)	80 mL Iohexol 300 mgI/mL + 30 mL NaCl flush	1.5 - 3 mL/sec
>65 kg (>140 lbs)	Patients above 65 kg use the Medrad™ P3T for volume of Iohexol 300mgI/mL + 30mL NaCl flush.	1.5 - 3 mL/sec
Injection Rate variable, depending on the size of patient and IV guage.		

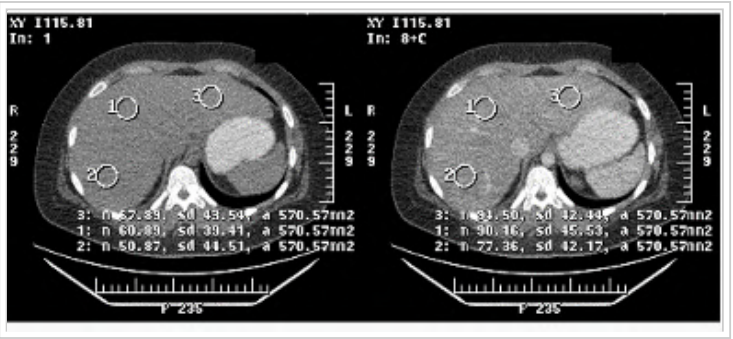
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

As small as possible

Scan Description

- **Series 1** – PA & Lateral Scout: from diaphragm through pubic symphysis
- **Series 2** – Scan Phase: Start scan just above the top of the diaphragm and end just below the pubic symphysis.
  - Smart Prep – Monitor Phase: Center over the liver. Place 3 ROIs in the liver. If enhancement threshold is not reach by 70 seconds, start the scan.



- **Series 3** - Delayed (Optional per MD) 5 - 7 minute delayed scans only in area of interest

Reformat Instructions

Use DMPR on recon 2 (thins) and (if spines are ordered) Manual on recon 3 and 5

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal
SA ST	Thin ST	Manual (if spines are ordered)	Average	450/50	2	1	sagittal
CO ST	Thin ST	Manual (if spines are ordered)	Average	450/50	2	1	coronal
SA BONE	Thin Bone	Manual (if spines are ordered)	Average	2500/350	2	1	sagittal
CO BONE	Thin Bone	Manual (if spines are ordered)	Average	2500/350	2	1	coronal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	80	100
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	80	100
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**25.0**	**25.0**	**30.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**110.00**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.7**	**0.7**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-420)**	**(80-530)**	**(80-480)**	**(80-510)**	**(100-640)**
Manual mA	**270.0**	**330.0**	**310.0**	**320.0**	**410.0**
Noise Index	**6.0**	**6.5**	**7.5**	**8.5**	**8.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 3 (Secondary)					
DFOV	16	16	16	16	16
Recon Type	Soft	Soft	Soft	Soft	Soft
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	60% / 30% / High	60% / 30% / High	60% / 30% / High	60% / 30% / High	60% / 30% / High
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 4 (Secondary)					
DFOV	16	16	16	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 5 (Secondary)					
DFOV	16	16	16	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	0.625	0.625	0.625	0.625	0.625
Interval (mm)	0.312	0.312	0.312	0.312	0.312

16 & 32 Slice Scanner Exceptions:

1. The 0.625mm slice thickness x 0.312mm interval Recon should be 1.25mm slice thickness x 0.625mm interval on 16 and 32 slice CT scanners. The 16 and 32 slice scanners are only able to recon down to 0.625mm slice thickness when using 10mm and/or 20mm beam collimation respectively. However, when using 20mm and/or 40mm beam collimation, they are only capable of reconstructing to 1.25mm slice thickness.
2. MARS feature is not an option.

3. IQ Enhance feature requires thin slices (1.25mm or less) with an interval of half (or less). On older scanner models, in order to enable IQ Enhance at 0.625 mm slice thickness, the interval must be set to 0.311 mm instead of 0.312 mm.

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**1.375**	**1.375**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**110.00**	**110.00**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.5**	**0.5**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-270)**	**(50-340)**	**(90-530)**	**(90-570)**	**(110-710)**
Manual mA	**170.0**	**210.0**	**340.0**	**360.0**	**460.0**
Noise Index	**7.5**	**9.0**	**10.0**	**11.0**	**11.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Pediatric Neck/Chest/Abd/Pelvis

Pediatric patients between the age of 18-20 yrs: to be scanned C/A/P in one scan. Do not scan using two groups.

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Chest with contrast: Initial evaluations for metastatic disease. Chest without contrast: Follow-up osteosarcoma mets

C/A/P: Neoplasm, fever of unknown origin, infection. Metastatic disease workup/follow-up.

Neck: mass, globus sensation, lymphadenopathy, head and neck cancer evaluation/follow-up, pharyngitis, tonsillar or peritonsillar abscess, neck abscess

Oral Contrast

These are target volumes for oral contrast. If the child is vomiting or otherwise unable to tolerate the total amount, it can obviously be decreased. For optimal interpretation of these scans, encourage the above amounts.

Hydrate ER patient if time allows

Mix 4mL Iohexol 300 (Omnipaque) in 200mL of a clear liquid.

Age	Weight (lbs)	Total Oral Contrast Quantity
0 - 1	10 - 25	100 mLs
1 - 3	20 - 40	200 mLs
3 - 5	30 - 60	400 mLs
5 - 10	40 - 90	600 mLs
11+	over 90	800 mLs +

Pre-Scan Instructions

CAP portion

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

Neck portion

- Patient supine, PA and lateral scouts from sella to mid chest (include the aortic arch), no gantry angle

- Have the patient remove any dentures or removable teeth, please place the shoulders as low possible
- Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.
- If the indication is for neck mass, especially for first time scans, please have patient place a BB on the palpable mass.
- Perform angled views if there are artifacts from dental fillings or metal hardware. Check with Radiologist before performing angled views on Pediatric patients, we rarely do these (see below)

IV Contrast Parameters

When scanning a pediatric Neck + C/A/P with contrast (based on patient's weight)

1. Use the weight conversion provided below to get the total contrast volume

Scan Combination	Contrast Dosage	Injection Rate
C/A/P + Neck Combo split the total contrast into thirds.		
C/A/P	**Use 2/3 total volume Iohexol 300 mgI/mL + 30 mL NaCl flush**	**1.5 - 3 mL/s**
Neck	**Use remaining 1/3 total volume Iohexol 300 mgI/mL + 20 mL NaCl flush**	**2 mL/s**
Change the Prep Delay to 20 seconds (from 45 seconds) on the Neck protocol.		
Chest + Neck Combo split the total contrast in half.		
Chest	**Use 1/2 total volume Iohexol 300 mgI/mL + 30 mL NaCl flush**	**1.5 - 3 mL/s**
Neck	**Use remaining 1/2 total volume Iohexol 300 mgI/mL + 20 mL NaCl flush**	**2 mL/s**
Change the Prep Delay to 20 seconds (from 45 seconds) on the Neck protocol.		

Field of View

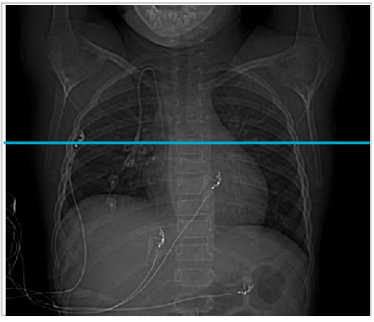
Same as previous study or as small as appropriate

Scan Description

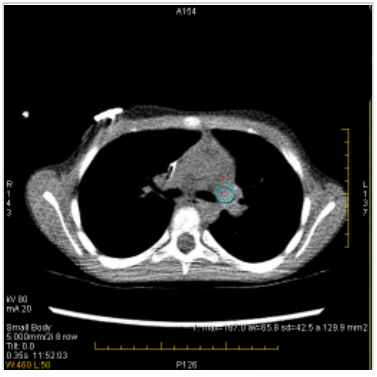
Chest only

- **Series 1** – PA & Lateral Scout: from base of neck through lung bases with inspiration

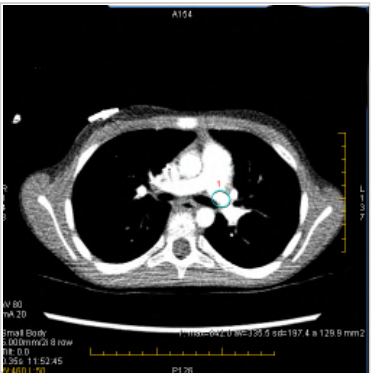
- **Series 2** - Helical: Scan from just above the lung apices and extend through lung bases with full inspiration.
- Smart prep: Place ROI on the pulmonary artery. Once it reaches the proper threshold, hit scan phase. The scan will then have a 12 second diagnostic delay built in. If enhancement threshold is not reach by 50 seconds, start the scan.



Scout



ROI Location



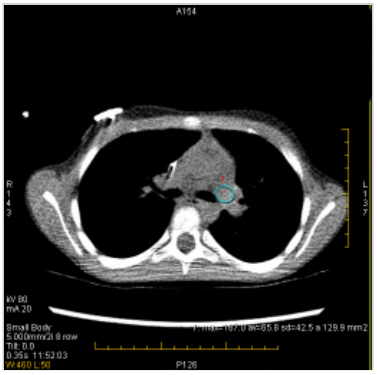
ROI Location

C/A/P

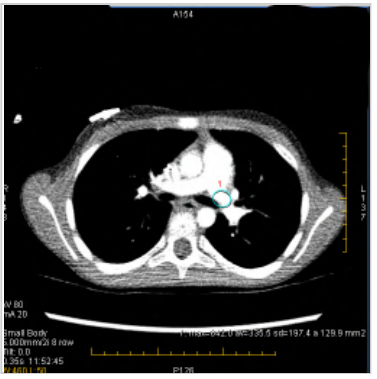
- **Series 1** – PA & Lateral Scout: from base of neck through pubic symphysis

- **Series 2** - Helical Phase: Scan Chest/ Abdomen/Pelvis in portal venous phase. Start scan just above the lung apices. For a Chest/Abdomen, end at the iliac crests and for a full CAP end at the pubic symphysis. **If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, scan in one group, not two**. You may want to turn off your DMPR's and manually preform the reformats.
    - Smart prep: Center over the pulmonary artery. There is a built in diagnostic delay of 20 seconds after the smart prep enhancement threshold is reached.

Scout



ROI Location



ROI Location

Neck

- Series 1 – Scouts PA and Lateral: from the top of the orbit to the carina.
- Series 2 – Neck with Contrast: Begin Scanning **20 seconds** after the start of injection: Start the scan at the top of the orbit and scan to the carina. Remind the patient not to swallow during the scan.

Please remember to change the prep group delay in the neck protocol to 20 seconds

Reformat Instructions

Use DMPR on THIN ST.

Reformats

C/CAP

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
PEDS SA CHEST	THIN LUNG	Manual	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	THIN LUNG	Manual	Average	1500/-700	4	2	coronal
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal
AX MIPS	THIN ST	Manual	MIP	1500/-700	10	5	Axial

Neck

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	400/60	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	400/60	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Use routine (or high image quality if you desire) pediatric CAP protocol followed by the routine pediatric Neck Protocol.

Upper Extremity CTA 4.10/4.11/4.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

R/O arterial injury, embolus, vasculitis, peripheral vascular disease in the upper extremity.

Oral Contrast

None

Pre-Scan Instructions

Patient positioned prone with affected extremity (i.e., arm) overhead in "superman" position and positioned in the center of the scanner. Hand should be placed flat palm down on the couch. The non-affected extremity (with IV) should be placed at the patient's side. Try to off center the patients body so the affected arm is midline in the scanner. Practice breathing instructions. Ask patient to cough just prior to the scan. If the patient cannot lie prone, supine and lateral positioning are acceptable alternatives. If the patient cannot raise their arm above their head, a supine position with their arm at the side may be attempted as a last resort.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	100 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	125 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5.5 mL/sec
>300 lbs (>136 kg)	150 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	6 mL/sec
18 G Antecubital IV Started in the non-affected extremity		

Field of View

As small as possible to a minimum of 32 cm, while still including entire arm and brachiocephalic artery.

Scan Description

- **Series 1** – PA and lateral scout
  - Coverage: diaphragm to finger tips
- **Series 2** – Non-contrast
  - Coverage:
    - ACUTE EMBOLISM: Diaphragm through the fingertips.
    - ROUTINE: Carina through fingertips.
    - FOCUSED: As specified by Radiologist. If not specified, then contact protocolling physician to determine appropriate coverage.
- **Series 3** - CTA
  - 1st Group: Coverage: Exact same as non-con
  - 2nd Group: Immediately follow with 2nd scan from the elbow to the fingertips.
  - Smart prep on the ascending aorta at the level of the carina

Reformat Instructions

See table below.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO	Thin ST	Manual	MIP	450/50	1.25	0.625	coronal from skin to skin

Networking

- All the images are sent to PACS (ALI_Store) and 3D Lab workstation.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-590)**	**(25-510)**	**(20-460)**
Manual mA	**290.0**	**260.0**	**280.0**
Noise Index	**14.5**	**20.0**	**25.5**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**4**	**4**	**4**
Monitoring ISD (sec)	**1.0**	**1.0**	**1.0**
Enhancement Threshold (HU)	**80**	**80**	**80**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-600)**	**(60-700)**	**(70-580)**
Manual mA	**240.0**	**260.0**	**360.0**
Noise Index	**11.5**	**15.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-600)**	**(60-700)**	**(70-580)**
Manual mA	**240.0**	**260.0**	**360.0**
Noise Index	**11.5**	**15.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Non-Gated CTA (Chest/Abd/Pelvis) 5.28/5.29/5.30

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate for known or suspected type “B” (descending) aortic dissection, intramural hematoma (IMH), aneurysm, leak, tear, or vasculitis.

Guidelines for using this protocol: (Note, please consult the protocolling radiologist if you have any questions on this protocol's use or if the order appears to not meet the criteria below.)

1. These studies require a non-contrast series first:
    - Acute aorta
        - Aortic dissection
        - Intramural hematoma
        - Penetrating atherosclerotic ulcer
    - Post-operative aorta
        - Endovascular repair (EVAR, TEVAR, FEVAR, PEVAR)
        - Open repair
2. These studies only require a single series (could be just non-contrast or CTA during arterial phase)
    - Aortic aneurysm
        - Initial evaluation
        - Follow-up
3. These studies require a delay phase
    - Evaluate for endoleak on an endostent

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

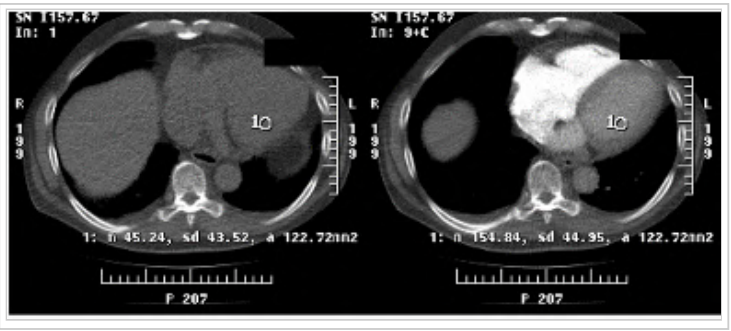
Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	100 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	125 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5.5 mL/sec
>300 lbs (>136 kg)	150 mL of Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	6 mL/sec
18 G Antecubital IV Started in the Right Arm		

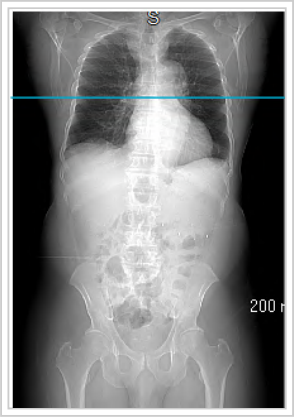
Field of View

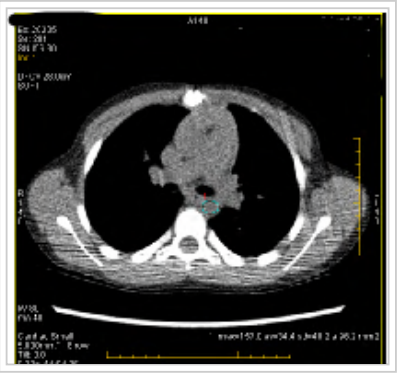
As small as possible to a minimum of 32 cm, while still including entire lungs and abdomen (can clip subcutaneous fat). Be sure to include femoral arteries if pelvis is included.

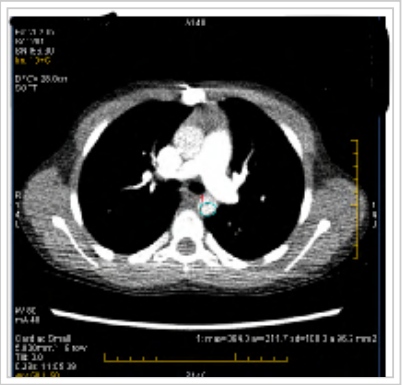
Scan Description

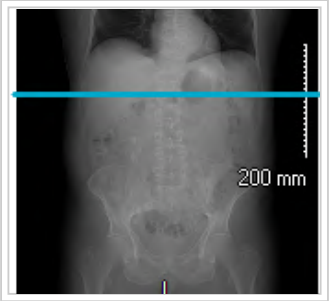
- **Series 1** - PA and lateral scout
  - Coverage:
    - Chest: Lower neck to mid-abdomen
    - Abd/Pelvis: Diaphragm to upper thighs
- **Series 2** - Non-contrast (only when ordered)
  - Coverage:
    - Chest: Lung apex to below the sma
    - Abdomen: Diaphragm to iliac crests
    - Pelvis: Iliac crests to lesser trochanters
- **Series 3** - CTA Coverage: Same as non-contrast scan. If chest is included, please adjust the lung recon to cover chest only.
  - If chest is included on the **non-revolution** scanner: Smartprep on left ventricle
  - If chest is included on the **revolution 256** scanner: Smartprep on descending aorta. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.**
  - If chest is not included: Smartprep on mid abdominal aorta
- **Series 4** (optional) – Delayed (Only needed to detect slow leak, for example, when evaluating endostents for endoleak)
  - Begin scan 2 min after beginning of contrast injection
  - Coverage: Same as non-contrast scan

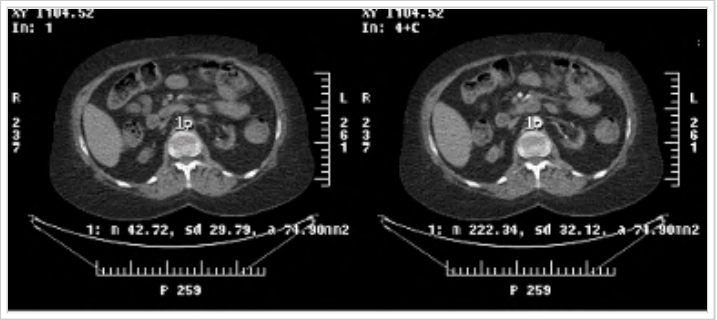












Reformat Instructions

- C/A/P = DMPR CO Body and SA Body is set up for the entire C/A/P. Please preform the chest reformats manually.
- Abdomen/Pelvis only = DMPR CO Body and SA Body is set up for the A/P.
- Chest only = Please preform the chest reformats manually.

Reformats

CAP or ABD/PELVIS only table

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA CV	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO CV	THIN ST	DMPR	Average	450/50	3	2	coronal

For the CAP, also do these for the lung field

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
MIPS	THIN ST	Manual	MIP	1500/-700	10	5	axial
SA	LUNG	Manual	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	LUNG	Manual	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

- Send the entire study to PACS (ALI_Store) including the Dose Information Slide. Also send the study to the 3D lab.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-600)**	**(25-540)**	**(25-480)**
Manual mA	**300.0**	**270.0**	**290.0**
Noise Index	**18.0**	**24.5**	**31.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**1**	**1**	**1**
Enhancement Threshold (HU)	**100**	**100**	**100**
Diagnostic Delay	**6**	**6**	**6**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.508**	**0.508**	**0.508**
Speed (mm/rot)	**40.60**	**40.60**	**40.60**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(25-360)**	**(20-390)**	**(20-450)**
Manual mA	**180.0**	**190.0**	**270.0**
Noise Index	**18.5**	**24.5**	**29.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.508**
Speed (mm/rot)	**79.40**	**79.40**	**40.60**
Rotation Time (s)	**1**	**1**	**0.6**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-530)**	**(30-570)**	**(25-570)**
Manual mA	**260.0**	**280.0**	**340.0**
Noise Index	**21.0**	**27.5**	**33.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Subclavian CT Venogram 5.55/5.56/5.57

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Evaluate the central veins in the upper chest and arms.

Oral Contrast

None

Pre-Scan Instructions

Arms must be down to visualize the upper arm veins. Practice breathing instructions. Remind the patient not to bear down.

IV Contrast Parameters

Syringe	Contrast Dosage	Injection Rate
Syringe 1 Load:	**140 mL of Iopamidol 370 mgI/mL (Isovue)**	**4 mL/sec**
Syringe 2 Load:	**10 mL of Iopamidol 370 mgI/mL (Isovue)** **90 mL of NaCl flush** ***Syringe 2 must be a 10% dilute solution***	**3 mL/sec**
18-20G IV started in the arm that the radiologist protocols.		

Field of View

As small as possible to a minimum of 32 cm including arms in the field of view.

Scan Description

- Series 1 - PA and lateral scout centering at sternal notch
  - During inspiration breath-hold.
  - Coverage:
  - Chest: Lower neck to mid-abdomen
- Series 2 – CT Venogram
  - Use a 60 second delay
  - During inspiration breath-hold
  - Coverage: Mid heart to Mandible

Reformat Instructions

Manual reformats on recon 1, series 2.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin ST	Manual	MIP	1700/-700	10	5	axial
CO	Thin ST	Manual	MIP	1700/-700	10	5	coronal
SA	Thin ST	Manual	MIP	1700/-700	10	5	sagittal

Networking

- Send the entire study to PACS (ALI_Store) and 3D Lab including the Dose Information Slide.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Give requisition to the 3D lab for processing.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.508	0.508	0.508
Speed (mm/rot)	40.60	40.60	40.60
Rotation Time (s)	1	1	1
kV	80	100	120
AEC type	smart mA	smart mA	smart mA
mA Range	(25-360)	(20-390)	(20-450)
Manual mA	180.0	190.0	270.0
Noise Index	18.5	24.5	29.5
Slice Thickness (mm)	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Post-Endostent Non-Con Volume Change (Abd/Pelvis only) 6.43/6.44/6.45

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

To rule out endoleak for patients that have had a prior post-endostent scan that showed no leak. Only usable for endostents below the diaphragm.

Oral Contrast

None

Pre-Scan Instructions

Notify the 3D technologist that a volume patient is on the table

IV Contrast Parameters

None

Field of View

As small as possible to a minimum of 32 cm, while still including entire lungs and abdomen (can clip subcutaneous fat). Be sure to include femoral arteries if pelvis is included.

Scan Description

- Series 1 - PA and lateral scout from diaphragm to pubic symphysis
- Series 2 - Non-contrast
  - During inspiration breath-hold
  - Coverage:Abd/Pelvis: Diaphragm to pubic symphysis
- Patient may get off table and remain in the waiting area
  - If non-contrast images show <2% volume increase, then patient may go
  - If non-contrast images show >2% volume increase, bring patient back and perform enhanced CTA and delayed series as (use the Nongated CTA protocol for this)
  - Billing: CT Abd/Pel w/o IVC and 3D

Reformat Instructions

No special reformat instructions, see the reformat section for basic details.

Reformats

None.

Networking

- All the images are sent to PACS (ALI_Store) and 3D Lab workstation.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

Give requisition to the 3D lab for processing.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.5**	**0.7**	**1**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-600)**	**(25-540)**	**(25-480)**
Manual mA	**300.0**	**270.0**	**290.0**
Noise Index	**18.0**	**24.5**	**31.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Lower Extremity CTA 9.13/9.14/9.15

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

For iliac occlusive disease, peripheral vascular disease, and patients with a “cold foot”. For patients with “cold foot” use complete coverage.

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Place feet close together, straight, and near the center of the scanner. If necessary secure patients feet together with tape to support.

IV Contrast Parameters

Weight Ranges	Contrast Dosage	Injection Rate
<200 lbs. (<90 kg)	Load 100 mL of Iopamidol 370 mgI/mL (Isovue) + 70 mL NaCl flush 1st phase 40 mL 370 mgI/mL 2nd phase 60 mL 370 mgI/mL 3rd phase 50 mL NaCl flush	1st phase 5 mL/sec 2nd phase 4 mL/sec 3rd phase 4 mL/sec
200-300 lbs (90-136 kg)	Load 125 mL of Iopamidol 370 mgI/mL (Isovue) + 70 mL NaCl flush 1st phase 50 mL 370 mgI/mL 2nd phase 75 mL 370 mgI/mL 3rd phase 50 mL NaCl flush	1st phase 5 mL/sec 2nd phase 5 mL/sec 3rd phase 5 mL/sec
>300 lbs (>136 kg)	Load 150 mL of Iopamidol 370 mgI/mL (Isovue) + 70 mL NaCl flush 1st phase 60 mL 370 mgI/mL 2nd phase 90 mL 370 mgI/mL 3rd phase 50 mL NaCl flush	1st phase 5.5 mL/sec 2nd phase 5.5 mL/sec 3rd phase 5.5 mL/sec

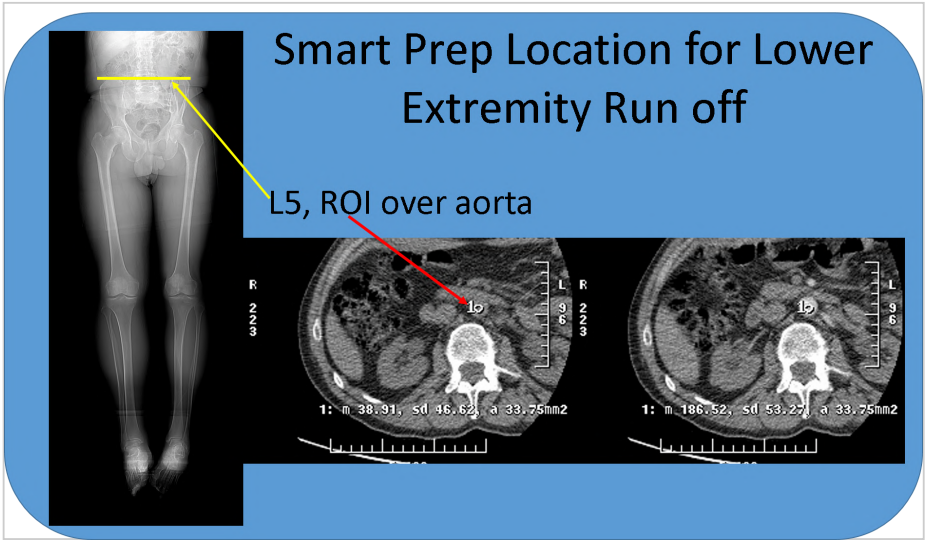
Field of View

As small as possible to a minimum of 32 cm, while still including aorta, iliac, femoral and lower extremity vessels.

Scan Description

- Series 1 – PA and lateral scout
  - Coverage: carina through tips of toes
- Series 2 – Non-contrast
  - Coverage:
    - ACUTE EMBOLISM: Carina through tips of toes
    - ROUTINE: Diaphragm through toes
    - FOCUSED: As specified by Radiologist. If not specified, then contact protocolling physician to determine appropriate coverage.

- Series 3, Group 1 - CTA
  - Smart Prep - Monitor Phase: On the aorta just above the common iliac bifurcation. **Dynamic transition is turned on so the scan will progress without the need for you to hit 'scan phase'.** If the smart prep has not peaked after 30 seconds, please scan. There a diagnostic delay of 12 seconds built in after the peak of contrast.
  - Coverage is the same as your Non-Contrast scan.
- Series 3, Group 2 - CTA knees down
  - Immediately follow with 2nd scan from popliteal fossa to tips of toes (all in one series, but two groups)
  - If there are more than 3000 images within this series, the scanner will not let you scan. You need to delete the second group. Scan the first group, once completed, hit repeat series move the start location to the knees, the end location should still be set up at the toes and then scan the delays.



Smart prep location

Reformat Instructions

Do coronal reformats at three different levels, making sure to include the anatomy in the DFOV below:

1. From above diaphragm to just below Symphysis pubis
2. From above femoral heads to just below the knee joint
3. From above the knee joint to the bottom of the feet (choose aquisition with best arterial enhancement). You may not be able to get this exact slice thickness and interval (1.5 X 0.98 usually works). More importantly overlap!

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CV	CO ABD/PEL	Manual	Average	800/150	1.25	0.98	coronal
CV	CO PELVIS TO KNEES	Manual	Average	800/150	1.25	0.98	coronal
CV	CO KNEES TO FEET	Manual	Average	800/150	1.25	0.98	coronal

Networking

- Send the Non Contrast & CTA series to Thin PACS (ALI_Source) and all other series (including the Dose Information Slide) to PACS (ALI_Store). Send Angio series to 3D Lab.
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-590)**	**(25-510)**	**(20-460)**
Manual mA	**290.0**	**260.0**	**280.0**
Noise Index	**14.5**	**20.0**	**25.5**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 3, Smart Prep

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**1.0**	**1.0**	**1.0**
Enhancement Threshold (HU)	**80**	**80**	**80**
Diagnostic Delay	**12**	**12**	**12**

Series 3, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-600)**	**(60-700)**	**(70-580)**
Manual mA	**240.0**	**260.0**	**360.0**
Noise Index	**11.5**	**15.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**1**	**1**	**1**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-600)**	**(60-700)**	**(70-580)**
Manual mA	**240.0**	**260.0**	**360.0**
Noise Index	**11.5**	**15.0**	**18.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**30% / 20% / Medium**	**30% / 20% / Medium**	**30% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Shoulder/Humerus (with or without Metal) 4.1/4.2/4.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Evaluation of the progress of osseous healing, fracture fixation, characterization of fractures, arthritis, mineralized lesions, and to evaluate the bone surrounding metallic implants. Shoulder CT is also indicated in patients with shoulder dislocation to evaluate complicating factors such as prolonged or irreducible dislocation.

Oral Contrast

None

Pre-Scan Instructions

Non-Arthrogram:

- Image the shoulder of interest with the patient lying supine with the arm being scanned at their side.
- The imaged shoulder should lie in the neutral position (palm facing the ceiling).
- Place the contralateral shoulder in the ABER position. (See picture below)
- Have the patient turn their head away from the shoulder being imaged.
- Move the imaged shoulder as close to the center of the scan field as possible. Image sharpness degrades significantly as an object is moved from the center to the edge of the 50 cm scan field of view.

Arthrogram:

- The patient is positioned supine in the CT scanner and 2 scans are performed.
- For the first scan the patient's arm is at their side, PALM UP, and the shoulder is scanned as in a routine CT, and the 3 standard sets of reformatted images are made.
- For the second scan the patient shoulder is placed in the Abducted/External Rotation (ABER) position, with their hand behind their head.

Arthrogram Position

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

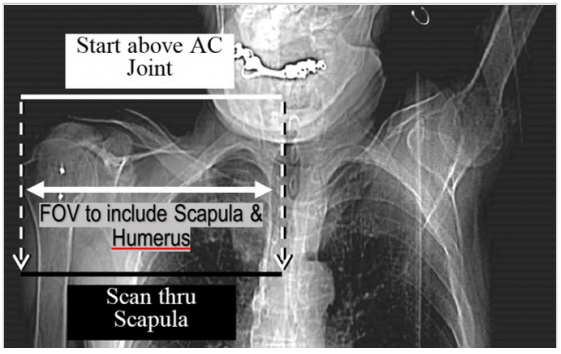
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

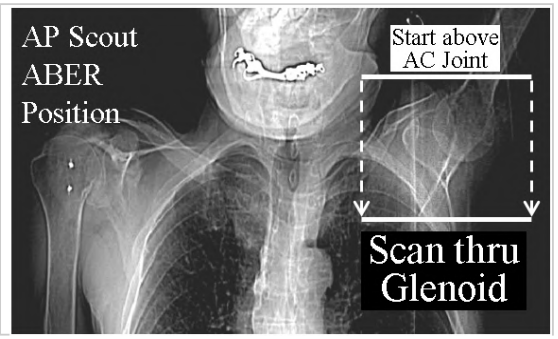
24 cm

Scan Description

- Series 1 - PA and lateral scout
- Series 2 - CT Shoulder
  - Coverage (non-arthrogram):
    - From above Acromial-Clavicular (AC) joint, through the bottom of the scapula.
    - Field of View (FOV) wide enough to include entire scapula and proximal humerus.
    - If there is a shoulder prosthesis, scan past the end of the humeral component.
- Series 3 - CT shoulder arthrogram (OPTIONAL)
  - Coverage (Arthrogram):
    - From above Acromial-Clavicular (AC) joint, past the bottom of the glenoid.
    - Field of View (FOV) wide enough to include: SC joint, entire scapula and proximal humerus. Scan coverage should resemble the image below.



Shoulder Scan Range (routine)

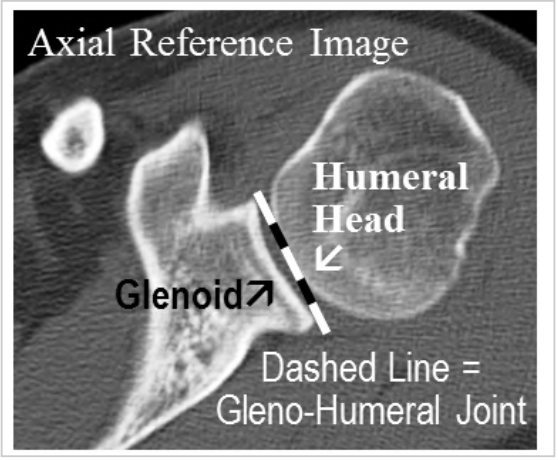


ABER Position

Reformat Instructions

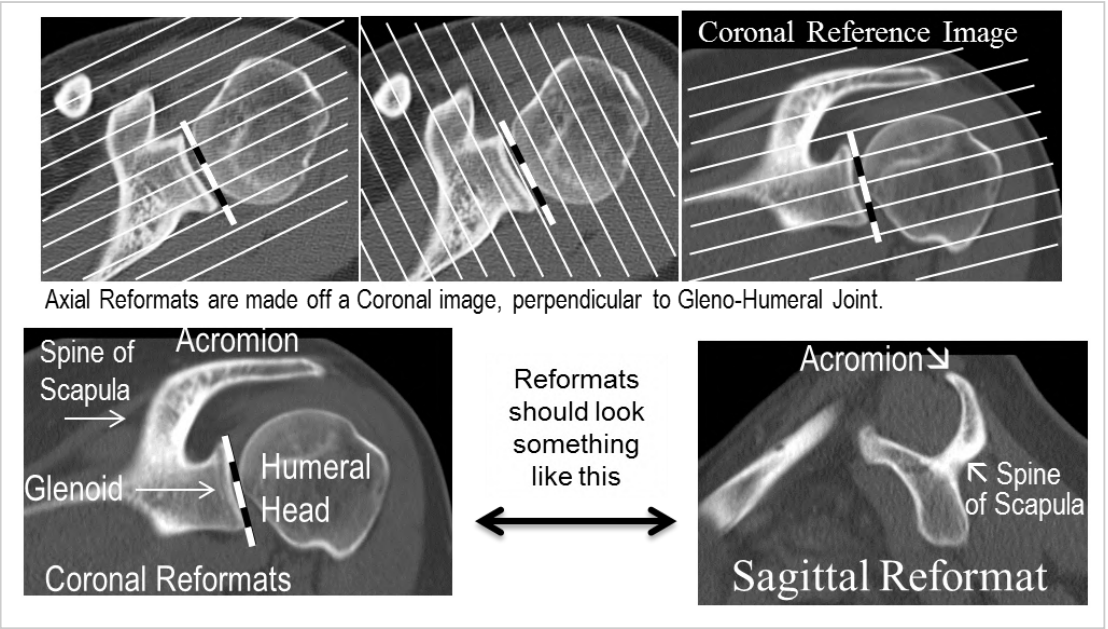
Non-Arthrogram:

- Reformat in 3 planes using the "BonePlus" images in a "Bone Window" (1500/300).
- All reformats are 3mm thick at 1.5mm intervals.
- ALL REFORMATS ARE RELATIVE TO THE GLENO-HUMERAL JOINT (Shown below).



Relative guide for reformats

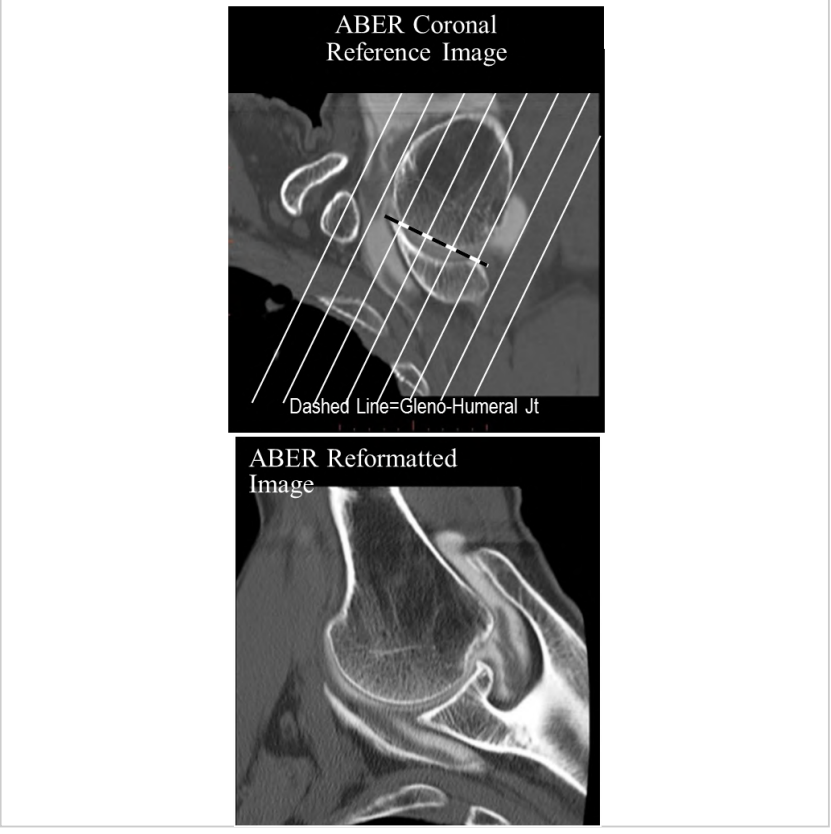
- Coronal & Sagittal Reformats are made off an Axial reference image, perpendicular & parallel to the Gleno-Humeral Joint.



Images of what the reformats should look like

Arthrogram:

- Using the ABER source images, find a Coronal reference image through the middle of the Gleno-Humeral Joint.
- Create ABER reformatted images perpendicular to the Gleno-Humeral Joint, 3mm thick at 1.5mm intervals.
- The ABER images should look something like the image below:



ABER reformats

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

If a long bone scan (humerus) is ordered, do CO/SA/AX reformat in 3x1.5 mm using the thin bone series.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
ABER	Thin Bone	Manual	Average	2500/350	3	1.5	Aber
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	140	140	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	140	140	140
Scout 2 mA	80	80	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-430)**	**(60-570)**	**(50-570)**
Manual mA	**270.0**	**290.0**	**340.0**
Noise Index	**10.5**	**14.5**	**21.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**24**	**24**	**24**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

	Small	Medium	Large
Recon 3 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Scout

	Small	Medium	Large
Scout 1 kV	**140**	**140**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**140**	**140**	**140**
Scout 2 mA	**80**	**80**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-430)**	**(60-570)**	**(50-570)**
Manual mA	**270.0**	**290.0**	**340.0**
Noise Index	**10.5**	**14.5**	**21.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Recons

No Metal	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**24**	**24**	**24**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

Small	Medium	Large	
Recon 3 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Elbow/Forearm (without Metal) 4.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Evaluation of the progress of osseous healing, fracture fixation, characterization of fractures, arthritis, osteochondral lesions, mineralized bone and soft tissue lesions, and to evaluate the bone surrounding metallic implants. CT is also useful in identifying ossified joint bodies that could cause a mechanical block to flexion or extension.

Oral Contrast

None

Pre-Scan Instructions

<u>Keys to Optimally Positioning the Elbow</u>

The elbow is the most difficult joint to scan. It is usually a challange to optimally position the elbow, particularly when the elbow is in a cast. The better the elbow is positioned in the scanner, the easier it will be to make the reformats.

Ideally, the arm should be raised above the patient's head. This is best achieved with the patient laying supine on the table. Sometimes creative positioning (prone, decubitus) will be necessary. Proper positioning is crucial for a couple reasons:

- It puts the elbow near the center of the scanner (allowing use of "Small SFOV").
- It avoids radiation to the head and torso.

If the patient's elbow is not in a cast:

- The elbow should be as straight as possible. (Fully extended)
- The arm should be supinated (palm up), causing the radius/ulna to be uncrossed.
- It helps to have the patient bend their head away from the elbow. Watch to make sure the patient's head doesn't hit the edge of scanner!

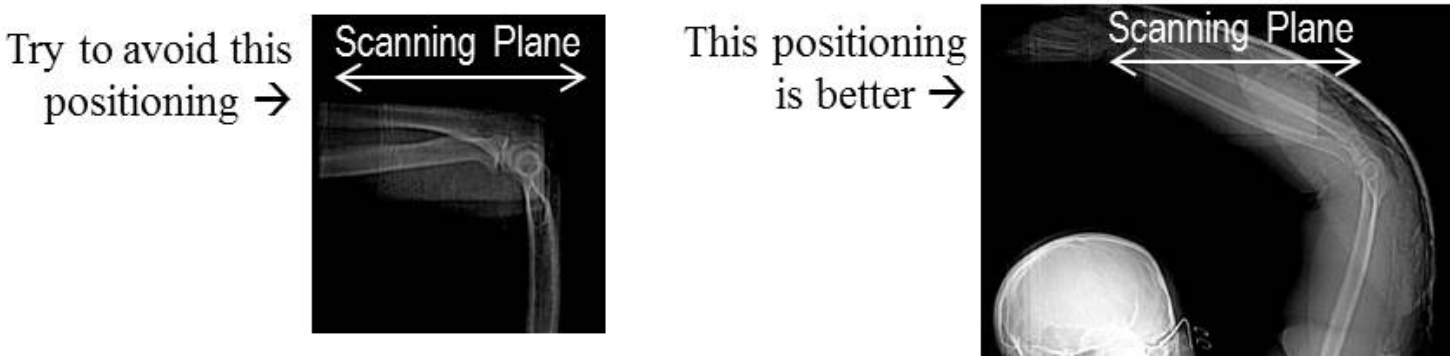
If the patient's elbow is in a cast:

- Every effort should be made to position the elbow above the head.
- Try to avoid positioning forearm bones parallel to scanning plane. This causes beam hardening artifacts along entire length of radius & ulna. It is better to have forearm oblique to the scanning plane.
- The arm should not be across the patient's body. This yields undesirable beam hardening artifacts from the torso, while it also causes unnecessary radiation to the torso.

If the arm cannot be raised above the head, **USE THE SHOULDER PROTOCOL WITH THE PATIENT'S ARM AT THIER SIDE** and create the same reformats of the elbow as if you had scanned using the elbow protocol. Having the elbow "half up" sitting next to the head is worse than having the elbow at the patients side. If the relative position of the elbow joint is important for the scan, please consult a radiologist for positioning guidance. If possible, place the contralateral arm above the head, if the patient cannot do that, it is okay to have the contralateral arm "half up" near the head since you will not be scanning that arm.

Respiratory motion will produce unacceptable reformatting artifacts (see below).

Effects of beam hardening and respiratory motion



IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

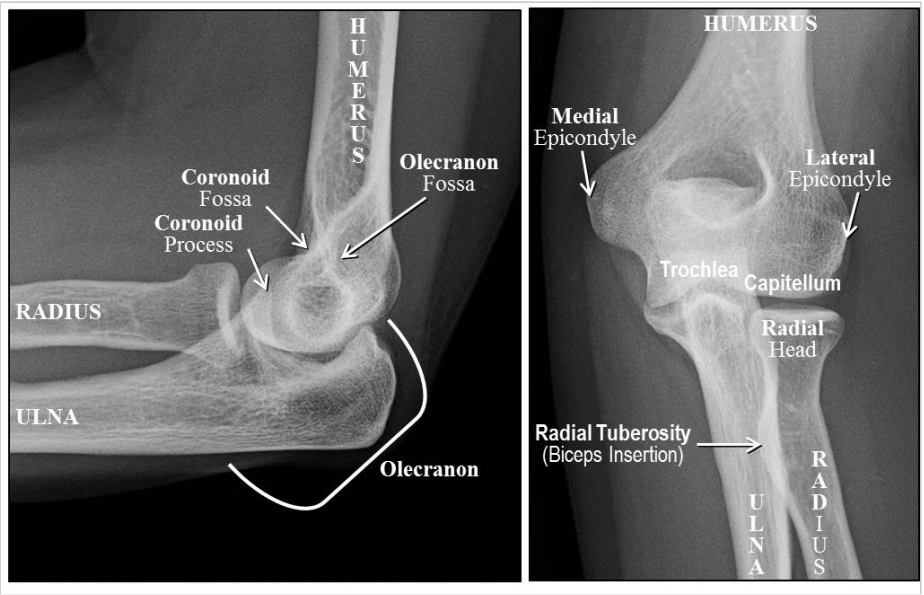
Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - CT Elbow cover distal humerus through proximal forearm

Reformat Instructions

Elbow Anatomy:

- Lateral and AP views respectively



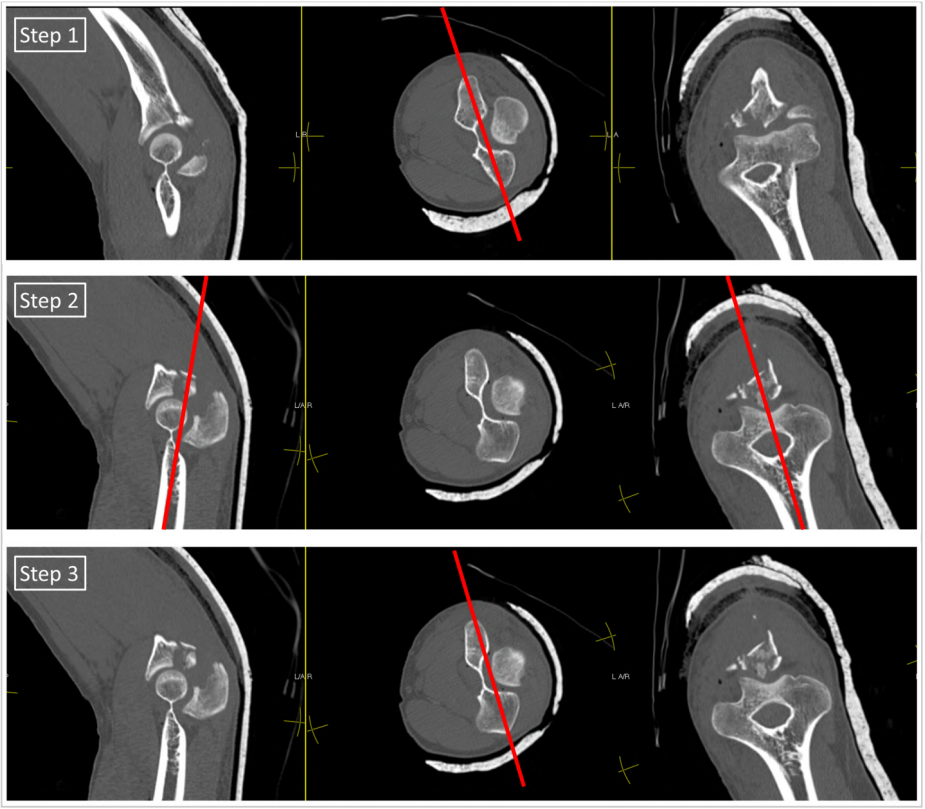
Elbow Anatomy

Reformatting: 3mm x 1.5 mm You may have anywhere from 3 to 6 reformats of the elbow depending on patient positioning. We need 3 views:

- Axial in respect to the humerus, radius and ulna. (may need two axials, one for the humerus and one for the radius/ulna)
- Sagittal in respect to the transepicondyler axis of the distal humerus. (usually only one reformat necessary)
- Coronal in respect to the transepicondyler axis of the distal humerus. (may need two axials, one for the humerus and one for the radius/ulna)

To achieve this, follow this 3-step process listed and pictured below to correct the elbow into the desired planes. Use the Multi-Oblique Reformatting Tool.

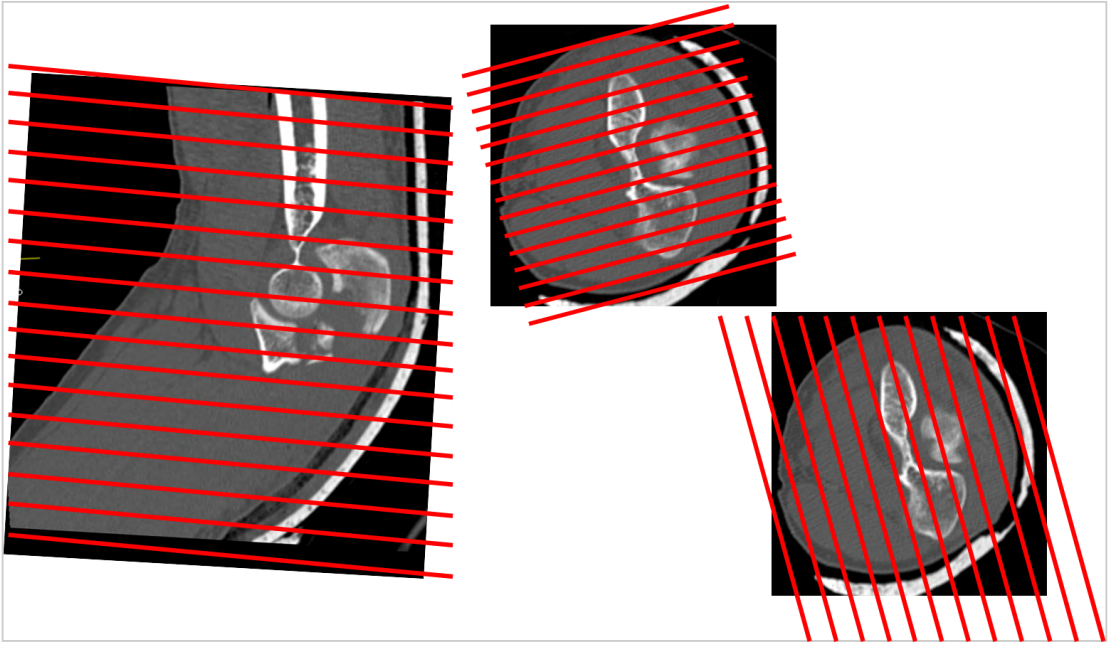
1. Using the axial images, align the coronal plane so that it is parallel to the transepicondylar axis of the distal humerus.
2. Align both the sagittal and coronal planes to be parallel to the shaft of the distal humerus.
3. Again use the axial images to fine tune the coronal plane to ensure that it is parallel to the transepicondylar axis of the distal humerus. Corresponding orthogonal views represent the sagittal and axial reformatting planes.



Elbow reformat instructions (guidance when using the multi-oblique reformatting tool)

Then, create your reformats off of these planes you just created as shown below.

1. Axial
2. Sagittal
3. Coronal



Reformat planes

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

If a long bone scan (forearm ulna/radius) is ordered, do CO/SA/AX reformat in 3x3 mm using the thin bone series.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX Humerus	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO Humerus	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA Humerus	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX Forearm	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO Forearm	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA Forearm	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX Humerus	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO Humerus	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA Humerus	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX Forearm	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO Forearm	Thin Bone	Manual	Average	2500/350	1.25	0.626	coronal
SA Forearm	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	120
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	120
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	Helical
Beam Collimation	40
Detector Rows	64.0
Detector Configuration	64x0.625
Scan FOV	Medium Body
Pitch	0.516
Speed (mm/rot)	20.60
Rotation Time (s)	0.7
kV	120
AEC type	Manual mA
mA Range	(60-640)
Manual mA	320.0
Noise Index	13.0
Slice Thickness (mm)	0.625
Interval (mm)	0.312

Series 2, Recons

Recon 1 (Primary)	No Metal
DFOV	22
Recon Type	Bone Plus
WW/WL	2500/350
Recon Option	Plus
Recon Option	IQ Enhance
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	0.625
Interval (mm)	0.312
Recon 2 (Secondary)	
DFOV	22
Recon Type	Standard
WW/WL	450/50
Recon Option	Plus
Recon Option	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium
Slice Thickness (mm)	0.625
Interval (mm)	0.312

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

Recon 3 (Secondary)	MAR
DFOV	22
Recon Type	Standard
WW/WL	450/50
Recon Option	Plus
Recon Option	IQ Enhance
Recon Option	MARS On
ASiR/ASiR256/DLIR	40% / 20% / Medium
Slice Thickness (mm)	0.625
Interval (mm)	0.312

Elbow/Forearm (with Metal) 4.7

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Evaluation of the progress of osseous healing, fracture fixation, characterization of fractures, arthritis, osteochondral lesions, mineralized bone and soft tissue lesions, and to evaluate the bone surrounding metallic implants. CT is also useful in identifying ossified joint bodies that could cause a mechanical block to flexion or extension.

Oral Contrast

None

Pre-Scan Instructions

Keys to Optimally Positioning the Elbow

The elbow is the most difficult joint to scan. It is usually a challange to optimally position the elbow, particularly when the elbow is in a cast. The better the elbow is positioned in the scanner, the easier it will be to make the reformats.

Ideally, the arm should be raised above the patient's head. This is best achieved with the patient laying supine on the table. Sometimes creative positioning (prone, decubitus) will be necessary. Proper positioning is crucial for a couple reasons:

- It puts the elbow near the center of the scanner (allowing use of "Small SFOV").
- It avoids radiation to the head and torso.

If the patient's elbow is not in a cast:

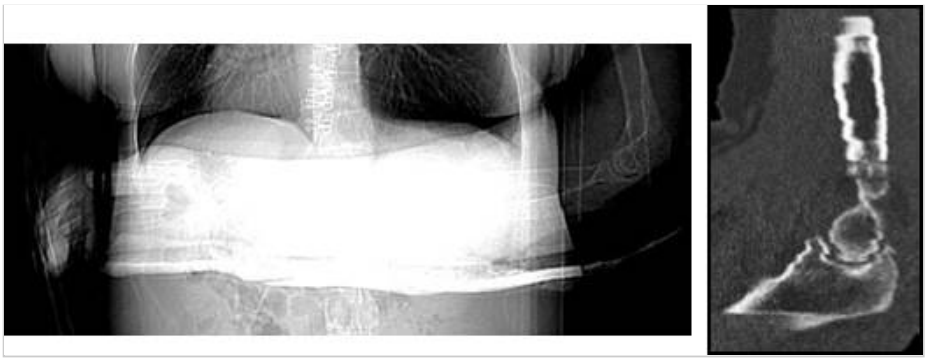
- The elbow should be as straight as possible. (Fully extended)
- The arm should be supinated (palm up), causing the radius/ulna to be uncrossed.
- It helps to have the patient bend their head away from the elbow. Watch to make sure the patient's head doesn't hit the edge of scanner!

If the patient's elbow is in a cast:

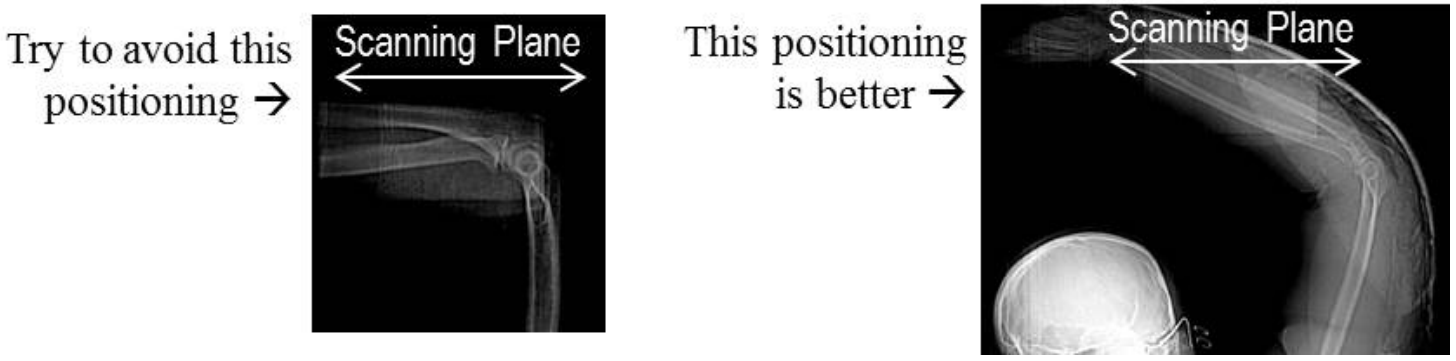
- Every effort should be made to position the elbow above the head.
- Try to avoid positioning forearm bones parallel to scanning plane. This causes beam hardening artifacts along entire length of radius & ulna. It is better to have forearm oblique to the scanning plane.
- The arm should not be across the patient's body. This yields undesirable beam hardening artifacts from the torso, while it also causes unnecessary radiation to the torso.

If the arm cannot be raised above the head, **USE THE SHOULDER PROTOCOL WITH THE PATIENT'S ARM AT THIER SIDE** and create the same reformats of the elbow as if you had scanned using the elbow protocol. Having the elbow "half up" sitting next to the head is worse than having the elbow at the patients side. If the relative position of the elbow joint is important for the scan, please consult a radiologist for positioning guidance. If possible, place the contralateral arm above the head, if the patient cannot do that, it is okay to have the contralateral arm "half up" near the head since you will not be scanning that arm.

Respiratory motion will produce unacceptable reformatting artifacts (see below).



Effects of beam hardening and respiratory motion



IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

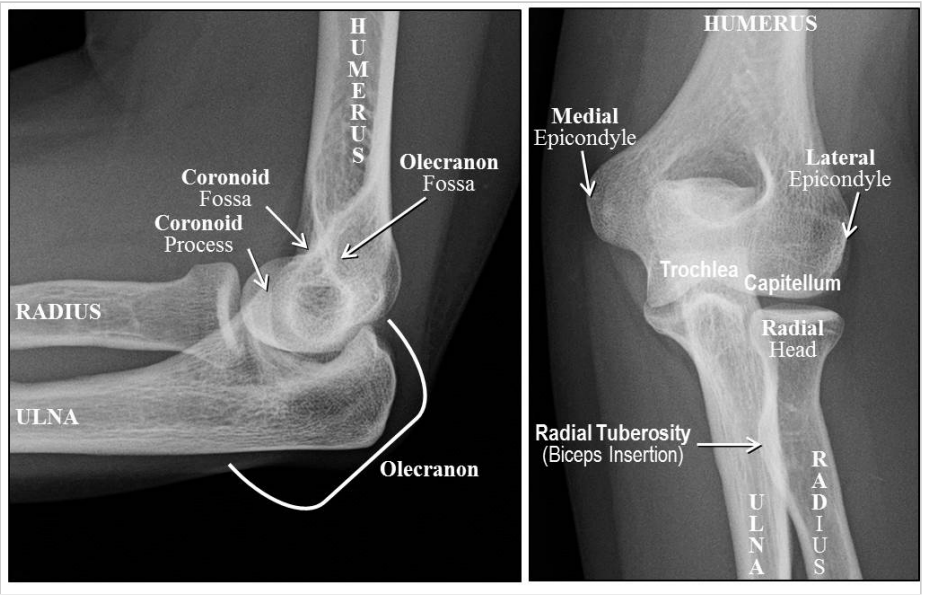
Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - CT Elbow cover distal humerus through proximal forearm

Reformat Instructions

Elbow Anatomy:

- Lateral and AP views respectively



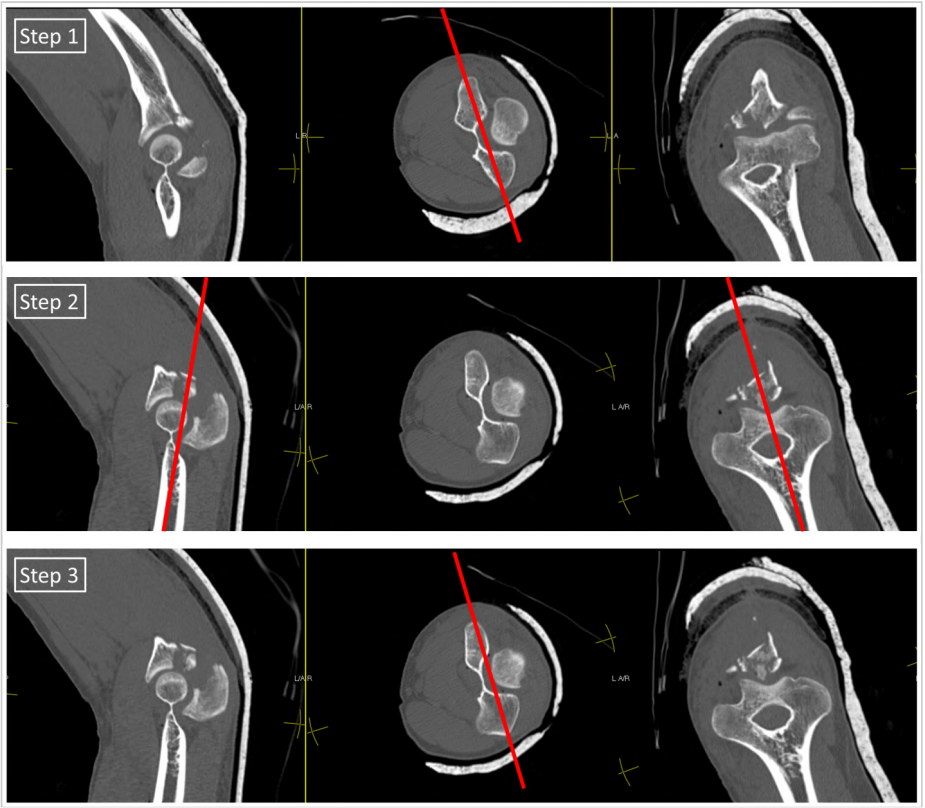
Elbow Anatomy

Reformatting: 3mm x 1.5 mm You may have anywhere from 3 to 6 reformats of the elbow depending on patient positioning. We need 3 views:

- Axial in respect to the humerus, radius and ulna. (may need two axials, one for the humerus and one for the radius/ulna)
- Sagittal in respect to the transepicondyler axis of the distal humerus. (usually only one reformat necessary)
- Coronal in respect to the transepicondyler axis of the distal humerus. (may need two axials, one for the humerus and one for the radius/ulna)

To achieve this, follow this 3-step process listed and pictured below to correct the elbow into the desired planes. Use the Multi-Oblique Reformatting Tool.

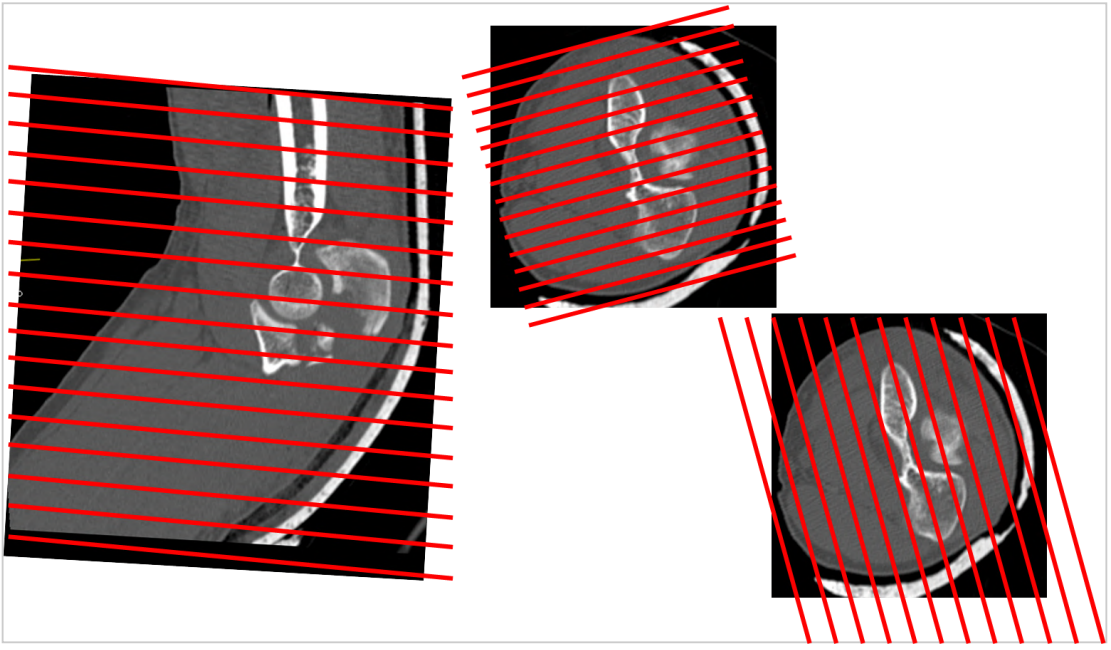
1. Using the axial images, align the coronal plane so that it is parallel to the transepicondylar axis of the distal humerus.
2. Align both the sagittal and coronal planes to be parallel to the shaft of the distal humerus.
3. Again use the axial images to fine tune the coronal plane to ensure that it is parallel to the transepicondylar axis of the distal humerus. Corresponding orthogonal views represent the sagittal and axial reformatting planes.



Elbow reformat instructions (guidance when using the multi-oblique reformatting tool)

Then, create your reformats off of these planes you just created as shown below.

1. Axial
2. Sagittal
3. Coronal



Reformat planes

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

If a long bone scan (forearm ulna/radius) is ordered, do CO/SA/AX reformat in 3x3 mm using the thin bone series.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX Humerus	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO Humerus	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA Humerus	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX Forearm	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO Forearm	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA Forearm	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX Humerus	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO Humerus	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA Humerus	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX Forearm	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO Forearm	Thin Bone	Manual	Average	2500/350	1.25	0.626	coronal
SA Forearm	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	140
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	140
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Medium Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**1**
kV	**140**
AEC type	**Manual mA**
mA Range	**(80-570)**
Manual mA	**390.0**
Noise Index	**8.0**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Series 2, Recons

Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

Recon 3 (Secondary)	MAR
DFOV	**22**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Wrist (without Metal) 4.8

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Detection or characterization of fractures, evaluation of treated fractures to evaluate the progress of osseous healing or adequacy of fracture fixation. Also for the evaluation of arthritis, mineralized bone and soft tissue lesions, and to evaluate the bone surrounding metallic implants.

Oral Contrast

None

Pre-Scan Instructions

- Arm over head
  - For most patients, this is best achieved prone (Alternatively, try decubitus positioning)
- Arm should be as straight as possible.
  - If the patient is in a long arm cast it will not be possible to completely straighten the arm.
- Wrist centered in gantry.
- No gantry tilt.

wrist positioning

- If the arm cannot be raised above the head, **USE THE SHOULDER PROTOCOL WITH THE PATIENT'S ARM AT THIER SIDE** and create the same reformats of the wrist as if you had scanned using the wrist protocol. Having the wrist "half up" sitting next to the head is worse than having the wrist at the patients side. If the relative position of the wrist joint is important for the scan, please consult a radiologist for positioning guidance. If possible, place the contralateral arm above the head, if the patient cannot do that, it is okay to have the contralateral arm "half up" near the head since you will not be scanning that arm.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

12 cm

Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - CT wrist
  - Wrist Coverage
    - When scanning the wrist
      - Always start proximal to the DRUJ (Distal Radial-Ulnar Joint)
      - Always scan distal to C-MC joints (Carpal-MetaCarpal joints)
    - When scanning the hand
      - Always start proximal to the DRUJ
      - Scan through the area of interest (This should be determined by the radiologist)

Wrist coverage example

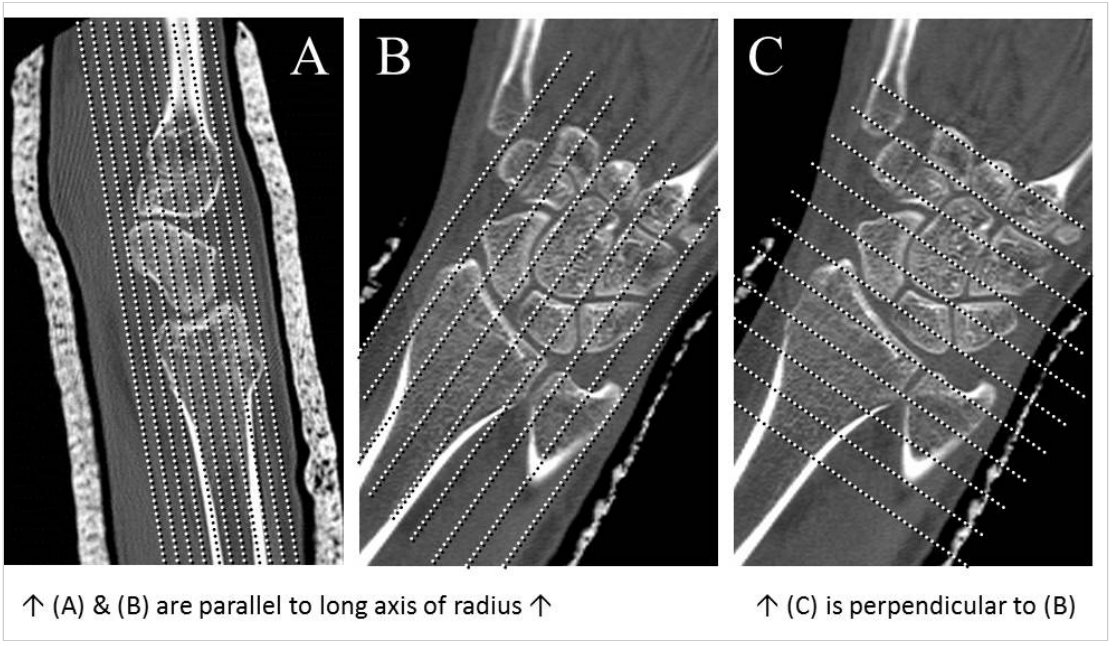
Reformat Instructions

- Use the Bone Recon for the CO/SA/AX
- Use the Standard Recon for one additional AX ST reformat.
- Wrist CTs should be reformatted in at least the basic 3 orthogonal planes – See images A, B, & C.
- In addition, an Oblique Axial Standard reformat parallel to the distal articular surface of the radius should be performed- See image E.
- In rare circumstances, such as for DRUJ instability, the radiologist may indicate that no reformats are necessary. See shaded box below.

- If the indication is to evaluate the “Scaphoid” or “Navicular,” then also reformat in the 4th plane, the oblique sagittal plane – See image D.
- If the wrist was obliqued in the scanner, the reference images will need to be obliqued to yield “True Sagittal” and “True Coronal” planes.

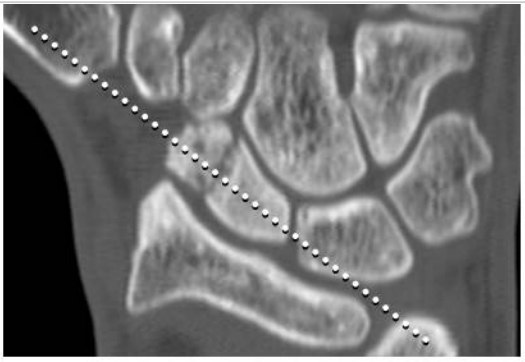
In order from left:

- Coronal with a standard of 2x1mm, made off a true sagittal
- Sagittal with a standard of 3x1.5mm, made off a true coronal
- Axial with a standard of 3x1.5mm, made of a true coronal

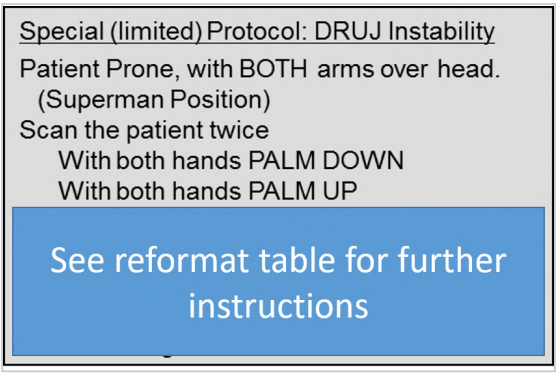


Reformats A,B and C

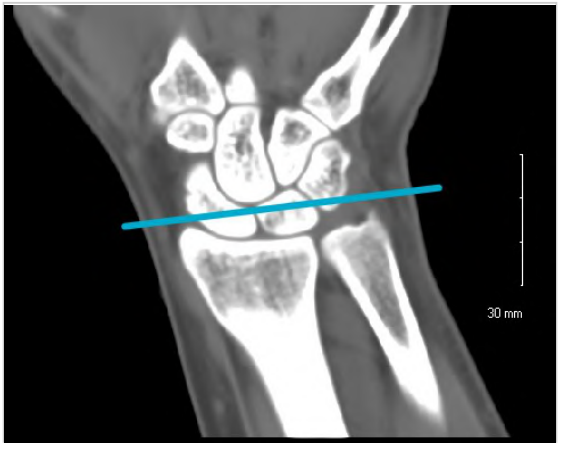
- The next photo, **D**, is of an oblique sagittal 1x1mm made off a true coronal
- For **E**, 1x.5mm STANDARD. Oblique Axial reformat parallel to the distal articular surface of the radius.



↑ (D) is along the long axis of the scaphoid



Special instructions



(E) ST Wrist reformat

2D Reformats

- Reformats in 3 or 4 planes
- Annotate as to "Right" or "Left".
- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO	Thin Bone	Manual	Average	2500/350	2	1	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Navicular FX

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
OBL SA	Thin Bone	Manual	Average	2500/350	1	.5	sagittal

For Distal Radius FX

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
OBL SA	Thin Bone	Manual	Average	2500/350	1	0.5	sagittal

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For when a DRUJ wrist is ordered

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Soft Tissue	Manual	Average	450/50	5	5	axial
CO	Thin Soft Tissue	Manual	Average	450/50	2	2	coronal
SA	Thin Soft Tissue	Manual	Average	450/50	2	2	sagittal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	100
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	100
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Small Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.5**
kV	**100**
AEC type	**Manual mA**
mA Range	**(60-510)**
Manual mA	**320.0**
Noise Index	**11.0**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Series 2, Recons

	No Metal
Recon 1 (Primary)	
DFOV	**12**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 2 (Secondary)	
DFOV	**12**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

Recon 3 (Secondary)	MAR
DFOV	**12**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Wrist (with Metal) 4.9

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Detection or characterization of fractures, evaluation of treated fractures to evaluate the progress of osseous healing or adequacy of fracture fixation. Also for the evaluation of arthritis, mineralized bone and soft tissue lesions, and to evaluate the bone surrounding metallic implants.

Oral Contrast

None

Pre-Scan Instructions

- Arm over head
  - For most patients, this is best achieved prone (Alternatively, try decubitus positioning)
- Arm should be as straight as possible.
  - If the patient is in a long arm cast it will not be possible to completely straighten the arm.
- Wrist centered in gantry.
- No gantry tilt.

wrist positioning

- If the arm cannot be raised above the head, **USE THE SHOULDER PROTOCOL WITH THE PATIENT'S ARM AT THIER SIDE** and create the same reformats of the wrist as if you had scanned using the wrist protocol. Having the wrist "half up" sitting next to the head is worse than having the wrist at the patients side. If the relative position of the wrist joint is important for the scan, please consult a radiologist for positioning guidance. If possible, place the contralateral arm above the head, if the patient cannot do that, it is okay to have the contralateral arm "half up" near the head since you will not be scanning that arm.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

12 cm

Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - CT wrist
  - Wrist Coverage
    - When scanning the wrist
      - Always start proximal to the DRUJ (Distal Radial-Ulnar Joint)
      - Always scan distal to C-MC joints (Carpal-MetaCarpal joints)
    - When scanning the hand
      - Always start proximal to the DRUJ
      - Scan through the area of interest (This should be determined by the radiologist)

Wrist coverage example

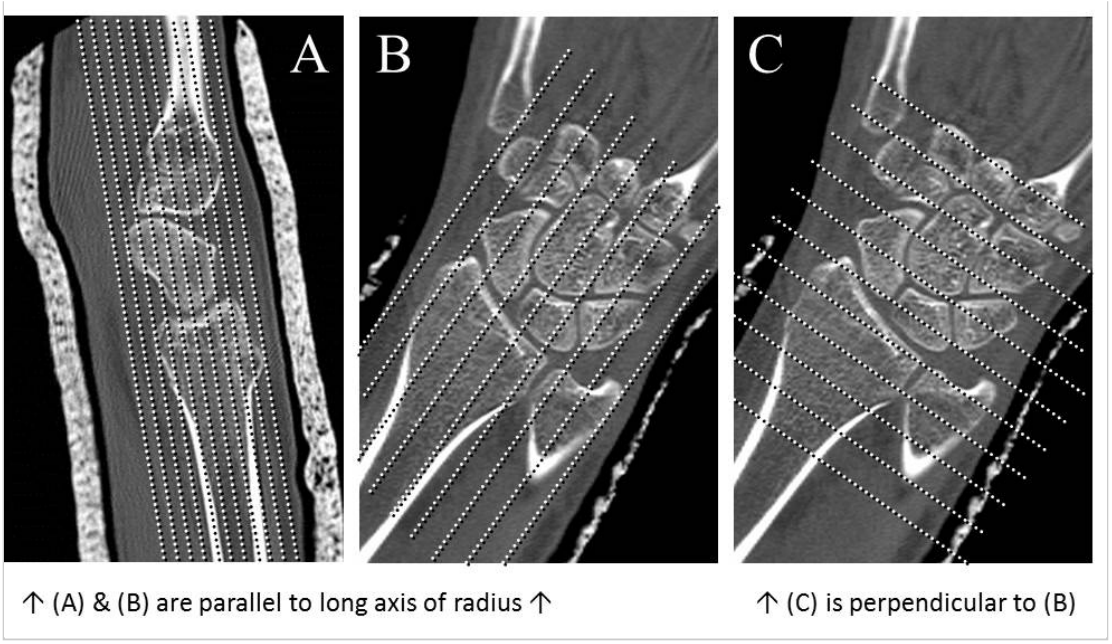
Reformat Instructions

- Use the Bone Recon for the CO/SA/AX
- Use the Standard Recon for one additional AX ST reformat.
- Wrist CTs should be reformatted in at least the basic 3 orthogonal planes – See images A, B, & C.
- In addition, an Oblique Axial Standard reformat parallel to the distal articular surface of the radius should be performed- See image E.
- In rare circumstances, such as for DRUJ instability, the radiologist may indicate that no reformats are necessary. See shaded box below.

- If the indication is to evaluate the “Scaphoid” or “Navicular,” then also reformat in the 4th plane, the oblique sagittal plane – See image D.
- If the wrist was obliqued in the scanner, the reference images will need to be obliqued to yield “True Sagittal” and “True Coronal” planes.

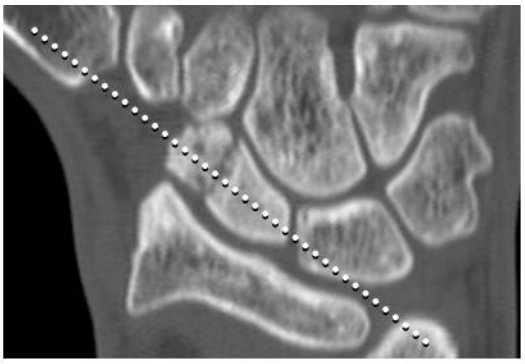
In order from left:

- Coronal with a standard of 2x1mm, made off a true sagittal
- Sagittal with a standard of 3x1.5mm, made off a true coronal
- Axial with a standard of 3x1.5mm, made of a true coronal



Reformats A,B and C

- The next photo, **D**, is of an oblique sagittal 1x1mm made off a true coronal
- For **E**, 1x.5mm STANDARD. Oblique Axial reformat parallel to the distal articular surface of the radius.



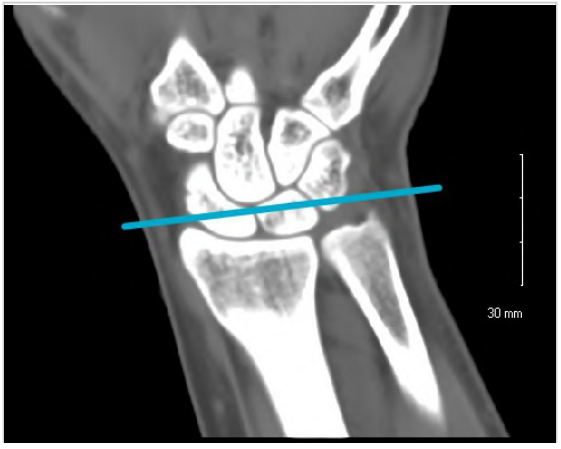
↑ (D) is along the long axis of the scaphoid

Special (limited) Protocol: DRUJ Instability

Patient Prone, with BOTH arms over head.
(Superman Position)
Scan the patient twice
With both hands PALM DOWN
With both hands PALM UP

See reformat table for further instructions

Special instructions



(E) ST Wrist reformat

2D Reformats

- Reformats in 3 or 4 planes
- Annotate as to "Right" or "Left".
- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO	Thin Bone	Manual	Average	2500/350	2	1	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Navicular FX

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
OBL SA	Thin Bone	Manual	Average	2500/350	1	.5	sagittal

For Distal Radius FX

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
OBL SA	Thin Bone	Manual	Average	2500/350	1	0.5	sagittal

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For when a DRUJ wrist is ordered

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Soft Tissue	Manual	Average	450/50	5	5	axial
CO	Thin Soft Tissue	Manual	Average	450/50	2	2	coronal
SA	Thin Soft Tissue	Manual	Average	450/50	2	2	sagittal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	140
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	140
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Small Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**1**
kV	**140**
AEC type	**Manual mA**
mA Range	**(70-570)**
Manual mA	**330.0**
Noise Index	**7.5**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Series 2, Recons

	With Metal
Recon 1 (Primary)	
DFOV	**12**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 2 (Secondary)	
DFOV	**12**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

Recon 3 (Secondary)	MAR
DFOV	**12**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Chest Wall/Clavicle/AC Joint/SC Joint/Sternum/Ribs 4.13/4.14/4.15

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Detection or characterization of fractures, evaluation of treated fractures to evaluate the progress of osseous healing or adequacy of fracture fixation. Also for the evaluation of arthritis, mineralized bone and soft tissue lesions, and to evaluate osteoarthritis. For infection, contrast will likely be needed.

Oral Contrast

None

Pre-Scan Instructions

If doing clavicle, AC or SC joints, arms should be down. If doing chest wall, sternum or ribs, arms should be up. Please remember to have the patient hold their breath for this scan.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

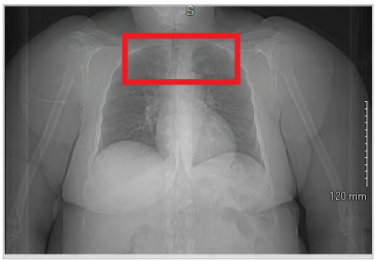
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

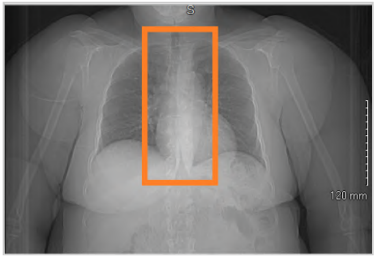
Variable, see scan description.

Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - Helical Scan
  - Coverage:
    - **SC Joint and Sternum**
      - FOV should extend 5 cm laterally on each side of the sternum.

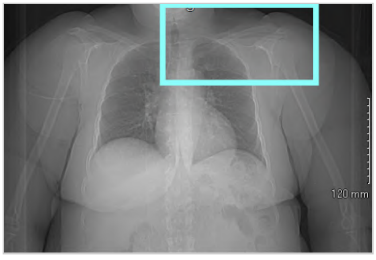


SC Joint



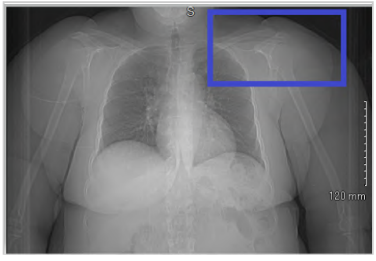
Sternum

- **Clavicle**
  - FOV should extend 5 cm laterally past the sternum and extend laterally past the AC joint.



Clavicle

- **AC Joint**
  - FOV should be mid clavicle to past the AC joint laterally.



AC Joints

- **Ribs**
  - The entire chest skin to skin should be covered and include all 12 ribs.
    - Note: if both AC joints/clavicle etc. are ordered, do not do 2 separate scans. If both sides are ordered, perform separate recons for each side using the same acquisition data.

Reformat Instructions

- All reformats will be 2 by 1 mm.
- For the clavicle: need a view along the long axis of the bone (Coronal) and perpendicular to the long axis of the bone (Sagittal), and an axial plane aligned to the body of the clavicle.
- For the AC and SC joints, the AX, SA, and CO should all be relative to the plane of the joint.
- For the chest wall, sternum, and ribs, the reformat planes should be aligned to the patient.

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	3000/300	2	1	axial
CO	Thin Bone	Manual	Average	2500/350	2	1	coronal
SA	Thin Bone	Manual	Average	2500/350	2	1	sagittal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Turn HD (high-res mode) on, but use the regular kernels. HD kernels increase the image noise, using HD mode and regular kernels is what UW recommends. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	140	140	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	140	140	140
Scout 2 mA	80	80	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-430)**	**(60-570)**	**(50-570)**
Manual mA	**270.0**	**290.0**	**340.0**
Noise Index	**10.5**	**14.5**	**21.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**24**	**24**	**24**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal. If Metal

MAR	Small	Medium	Large
Recon 3 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Bony Pelvis/Hips/SI/Femur/FAI (without Metal) 8.1/8.2/8.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

For evaluation of the cortex of the pelvic ring and acetabuli, typically in the setting of acute trauma. This protocol is also used for Femoroacetabular Impingement (FAI). Note: there are separate adult and pediatric protocols for bony pelvis and there is a separate adult femoral anteversion and pediatric SPICA protocol.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine, legs flat on the table.
- No cushions/wedges under legs/feet.
- Turn the toes inward.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

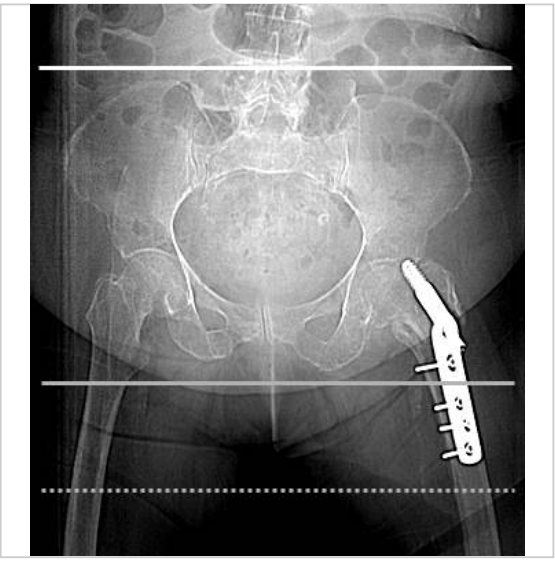
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 – PA and lateral scout
- Series 2 – CT Bony Pelvis
  - Coverage: (see picture)
  - From above iliac crests (white line)
  - To below lesser trochanters and below ischial tuberosities (gray line)
  - If hardware is present, cover the hardware and adjacent bone (dotted line)

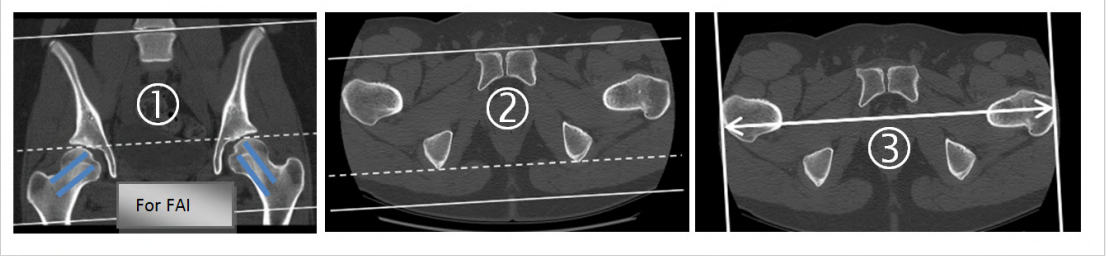


Bony Pelvis Scan Range

Reformat Instructions

Reformat slices 3mm Thick at 1.5mm Intervals in all 3 planes in the Bone Window unless specified to also do STD.

- Straight Axial Reformats
  - Set-up off a coronal image that shows both femoral heads.
  - Angle such that slices cut through femoral heads evenly (dotted line).
  - Cover from iliac crests through ischial tuberosities and lesser trochanters.
- Straight Coronal Reformats
  - Set-up off an axial image that shows pubic symphysis.
  - Angle slices through ischial tuberosities evenly (dotted line).
  - Cover from in front of the pubic symphysis to behind the gluteal muscles.
- Straight Sagittal Reformats
  - Can set-up off same axial image as above.
  - Cover continuously from the right hip to the left hip, including the sacrum.

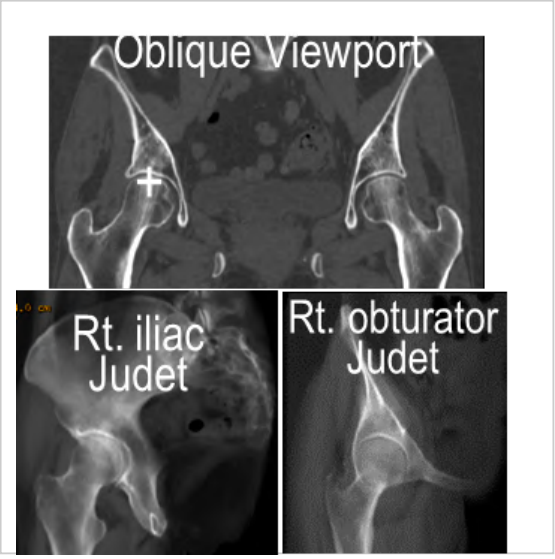


Reformat slices 3mm Thick at 1.5mm Intervals in all 3 planes
For "FAI" add oblique reformats parallel to femoral necks (blue lines)

Judet Views (For acetabular fractures)

- To reformat “Judet” views on GE CT scanner:
- Move reference to femoral head on oblique viewport
- Adjust slice thickness (middle mouse button) ~60mm
- Change “MIP” to “Average” (right mouse button)
- Set Window=2000, Level=350
- Hide Annotations (right mouse button)

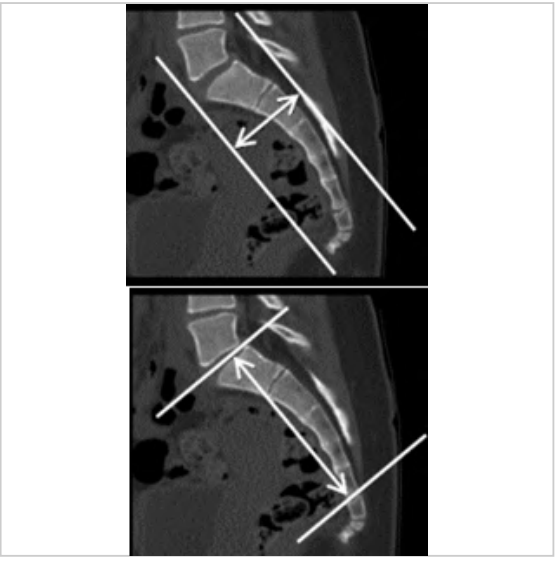
- Click “Rotate/Translate” button. Can sometimes be hidden within “Display button” (blue box with the letter A) and set to 45 degrees
- Click to “Rotate to Left”
- Save Image (right mouse button)
- Click TWICE to rotate to center, then to right
- Save this image as well.
    - Repeat steps 7-10 for other hip. Send the 4 images.



Example of Judet reformating

SI Joints- Reformat 3mm Thick at 1.5mm Intervals

- Oblique Coronal Reformats
    - Set-up off a mid-line sagittal image through the sacrum.
    - Angle slices parallel to the long axis of the sacrum.
    - Cover the sacrum front-to-back. (Check the reformats to make sure the SI joints are covered in their entirety.)
- Oblique Axial Reformats
    - Set-up off same mid-sagittal image as above.
    - Angle slices to be perpendicular to the oblique coronals.
    - Cover the entire sacrum top-to-bottom.



SI joints for reformatting

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-620)**	**(70-660)**	**(50-570)**
Manual mA	**390.0**	**330.0**	**340.0**
Noise Index	**14.5**	**17.0**	**21.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

MAR	Small	Medium	Large
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Bony Pelvis/Hips/SI/Femur/FAI (with Metal) 8.4/8.5/8.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

For evaluation of the cortex of the pelvic ring and acetabuli, typically in the setting of acute trauma. This protocol is also used for Femoroacetabular Impingement (FAI). Note: there are separate adult and pediatric protocols for bony pelvis and there is a separate adult femoral anteversion and pediatric SPICA protocol.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine, legs flat on the table.
- No cushions/wedges under legs/feet.
- Turn the toes inward.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

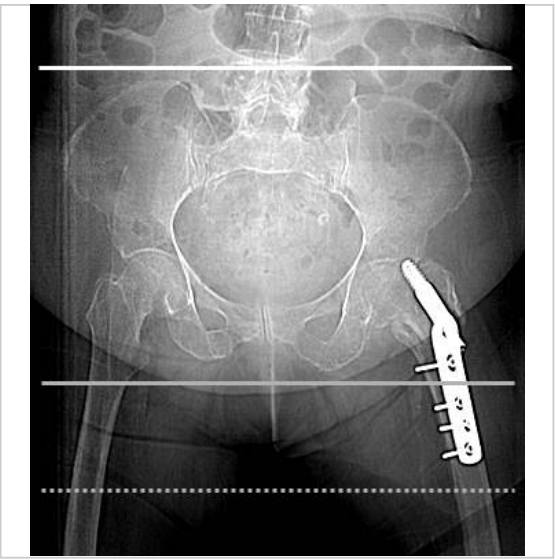
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

36 cm

Scan Description

- Series 1 – PA and lateral scout
- Series 2 – CT Bony Pelvis
  - Coverage: (see picture)
  - From above iliac crests (white line)
  - To below lesser trochanters and below ischial tuberosities (gray line)
  - If hardware is present, cover the hardware and adjacent bone (dotted line)

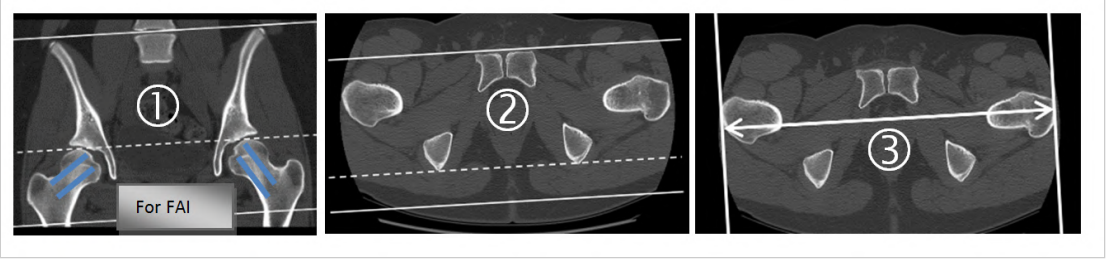


Bony Pelvis Scan Range

Reformat Instructions

Reformat slices 3mm Thick at 1.5mm Intervals in all 3 planes in the Bone Window unless specified to also do STD.

- Straight Axial Reformats
  - Set-up off a coronal image that shows both femoral heads.
  - Angle such that slices cut through femoral heads evenly (dotted line).
  - Cover from iliac crests through ischial tuberosities and lesser trochanters.
- Straight Coronal Reformats
  - Set-up off an axial image that shows pubic symphysis.
  - Angle slices through ischial tuberosities evenly (dotted line).
  - Cover from in front of the pubic symphysis to behind the gluteal muscles.
- Straight Sagittal Reformats
  - Can set-up off same axial image as above.
  - Cover continuously from the right hip to the left hip, including the sacrum.

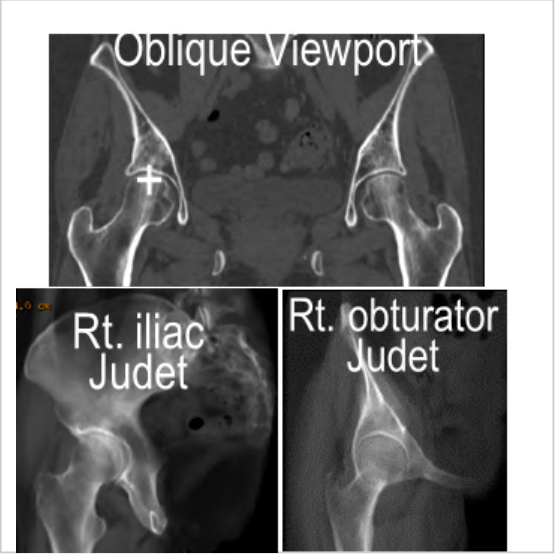


Reformat slices 3mm Thick at 1.5mm Intervals in all 3 planes
For "FAI" add oblique reformats parallel to femoral necks (blue lines)

Judet Views (For acetabular fractures)

- To reformat “Judet” views on GE CT scanner:
- Move reference to femoral head on oblique viewport
- Adjust slice thickness (middle mouse button) ~60mm
- Change “MIP” to “Average” (right mouse button)
- Set Window=2000, Level=350
- Hide Annotations (right mouse button)

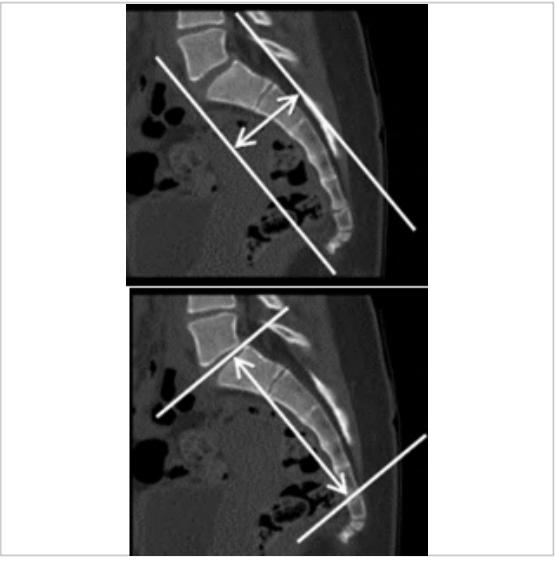
- Click “Rotate/Translate” button. Can sometimes be hidden within “Display button” (blue box with the letter A) and set to 45 degrees
- Click to “Rotate to Left”
- Save Image (right mouse button)
- Click TWICE to rotate to center, then to right
- Save this image as well.
    - Repeat steps 7-10 for other hip. Send the 4 images.



Example of Judet reformating

SI Joints- Reformat 3mm Thick at 1.5mm Intervals

- Oblique Coronal Reformats
    - Set-up off a mid-line sagittal image through the sacrum.
    - Angle slices parallel to the long axis of the sacrum.
    - Cover the sacrum front-to-back. (Check the reformats to make sure the SI joints are covered in their entirety.)
- Oblique Axial Reformats
    - Set-up off same mid-sagittal image as above.
    - Angle slices to be perpendicular to the oblique coronals.
    - Cover the entire sacrum top-to-bottom.



SI joints for reformatting

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.6**	**1**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-570)**	**(70-635)**	**(80-635)**
Manual mA	**370.0**	**330.0**	**500.0**
Noise Index	**8.5**	**12.0**	**17.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal. If Metal

MAR	Small	Medium	Large
Recon 3 (Secondary)			
DFOV	**30**	**40**	**50**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Mako Hip 8.14

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Pre robot surgery scan for MAKO hip procedure.

Oral Contrast

None

Pre-Scan Instructions

- Scan patient in supine position feet first, anytime before MAKOplasty THA procedure (up to 8 weeks in advance).
- Position patient to minimize pelivic obliquity through the following measures:
  - Align both ankles and both knees
  - Ensure patient is in true supine position by
  - Palpating the anteriror superior iliac spines and compairing relative height above the CT scanner bed
  - Align longitudinal axis of the body with Longitudinal axis of CT scanning bed

IV Contrast Parameters

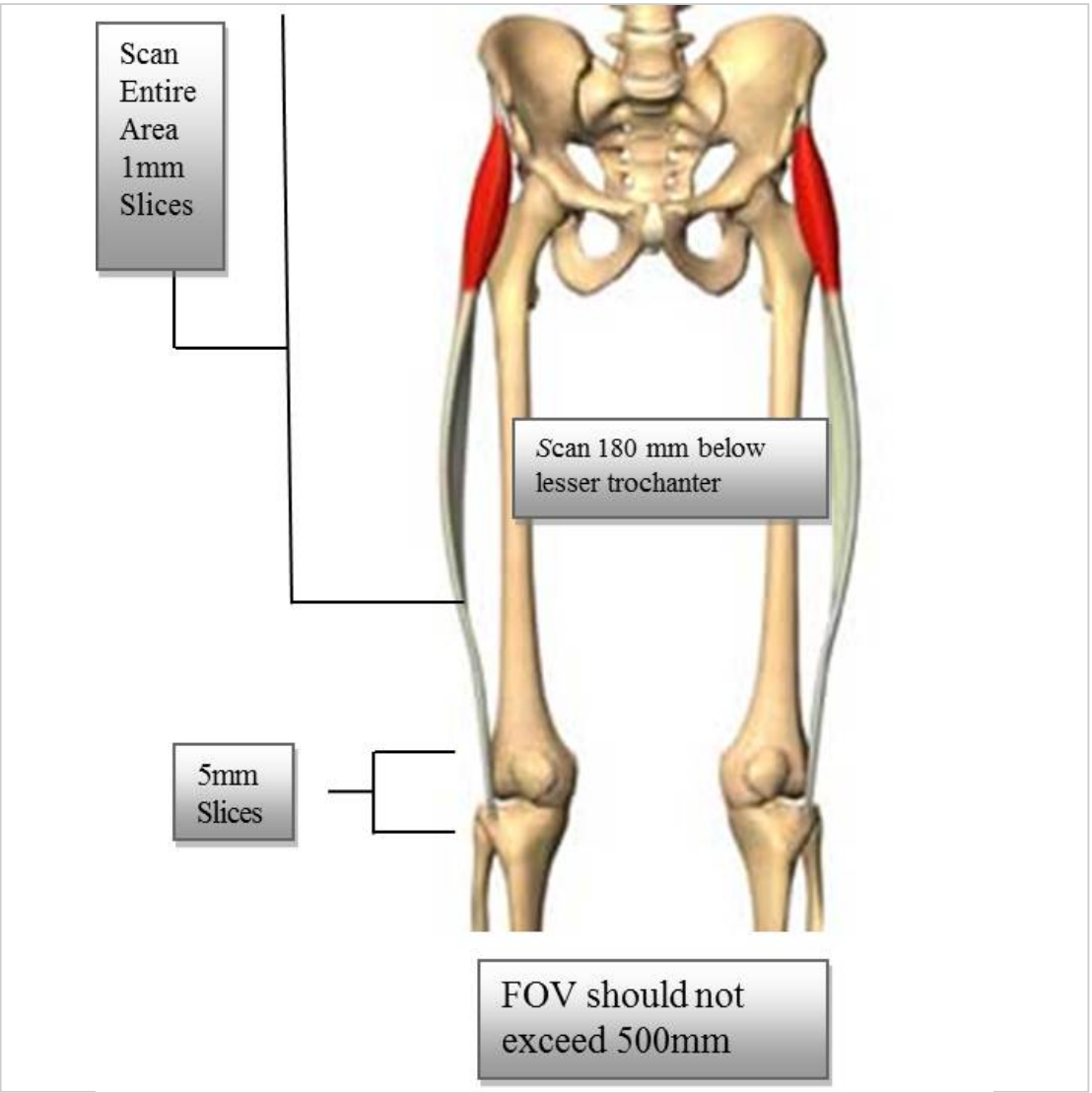
None

Field of View

- Should not exceed 50 cm
- Pelvis and Proximal Femur: Scan includes the entire bi-lateral pelvis(Medial/Lateral/Anterior/Posterior/Superior) and at least 18 cm below the lesser torochanter on the femur
- Knee: Scan includes bilateral knee-joint lines Between femur and tibia and 10cm proximal to joint line on femur

Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - MAKO hip
  - Mako Hip Coverage:
    - Supine Only: Invert patient toes, include lesser trochanters.
    - Pelvis and Proximal Femur: FOV:Scan includes the entire bi-lateral pelvis(Medial/Lateral/Anterior/Posterior/Superior) and at least 180mm below the lesser trochanter on the femur
    - Knee: Scan includes bilateral knee-joint lines between femur and tibia and 10 cm proximal to joint line on femur.



MAKO hip scan ranges

Reformat Instructions

Same as Bony Pelvis without (SA, CO, AX)

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

Table not yet provided, please see reformat instructions above.

Networking

- Axial Images to Thin PACS (ALI_Source) and Reformats and Scouts to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Bone Density Recon 3 is sent to QCT-HIP and PACS (ALI_Store).

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Any Size
Scout 1 kV	**120**
Scout 1 mA	**10**
Scout 1 Angle	**180**
Scout 2 kV	**120**
Scout 2 mA	**40**
Scout 2 Angle	**90**
WW/WL for Scout	**500/50**

Series 2, Group 1, Scan Phase

	Any Size
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Large Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**Manual mA**
mA Range	**(500-500)**
Manual mA	**500**
Noise Index	**5.0**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.625**

Series 2, Group 1, Recons

	Any Size
Recon 1 (Primary)	
DFOV	**50**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Full**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.625**
Recon 2 (Secondary)	
DFOV	**50**
Recon Type	**Standard**
WW/WL	**350/50**
Recon Option	**Plus**
Recon Option	
ASiR/ASiR256/DLIR	**40% / 20% / Low**
Slice Thickness (mm)	**2.5**
Interval (mm)	**2.5**

Series 2, Group 2, Scan Phase

	Any Size
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Large Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**Manual mA**
mA Range	**(250-250)**
Manual mA	**250**
Noise Index	**5.0**
Slice Thickness (mm)	**5**
Interval (mm)	**5**

Series 2, Group 2, Recons

	Any Size
Recon 1 (Primary)	
DFOV	**25**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Full**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**5.0**
Interval (mm)	**5.0**

Ankle/Foot/Distal Tibia (without Metal) 9.1

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Evaluation of treated fractures, fracture fixation, assess progress of osseous healing, arthritis, mineralized lesions, osteochondral lesions of the joints, and to evaluate the bone surrounding metallic implants. This protocol is also indicated in patients have undergone surgical ankle or hindfoot fusion (arthrodesis) to assess the extent of osseous union.

Oral Contrast

None

Pre-Scan Instructions

- Use a foot holder, if available.
- Patient supine.
- Feet together, centered in scanner.
- Toes pointing straight up.
- No gantry tilt.
- In most cases scan both feet together.
    - If feet cannot be brought together,position the patient such that the foot/ankle of interest is centered in the scanner.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

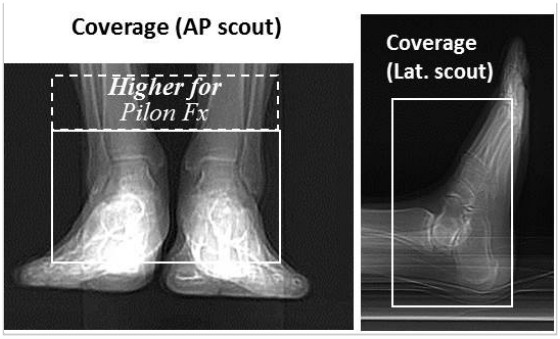
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

Scan Description

- Series 1 - PA and lateral scout
  - Coverage (see images)



Ankle coverage

- Series 2 - CT Ankle/Foot/Distal Tib
  - Coverage for Ankle/Distal Tibia: Start scan above syndesmosis (Tib/fib Joint)(Higher for pilon Fractures as noted in image.) End scan below calcaneus.
  - Coverage for Foot: Start scan above syndesmosis (Tib/fib Joint) include entire foot (tarsals, metatarsals and phalanges).

Reformat Instructions

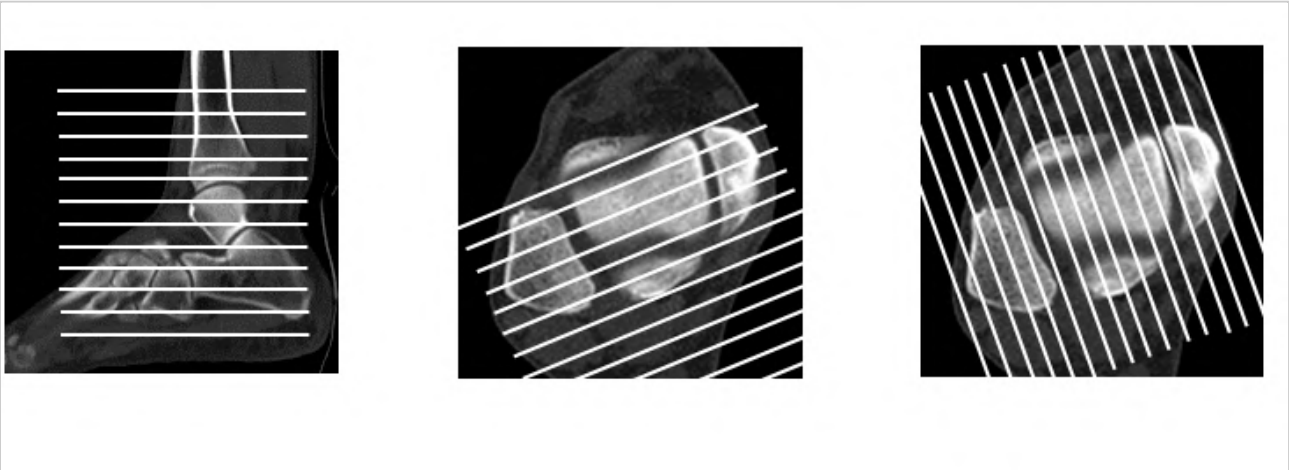
Use the Bone Window unless specified to use STD.

Ankl/Distal Tibia(centered on Ankle Joint) Appropriate for:

- Distal tibial fractures (Pilon, malleoli, triplane, juvenile Tillaux)
- Talar dome fractures (OCD)

Picture descriptions from left to right:

- Straight Axial- Off the sagittal, 3x1.5mm
- Mortise Coronal- Off an axial, 3x1.5mm
- Mortise Sagittal- Off an axial, 3x1.5mm



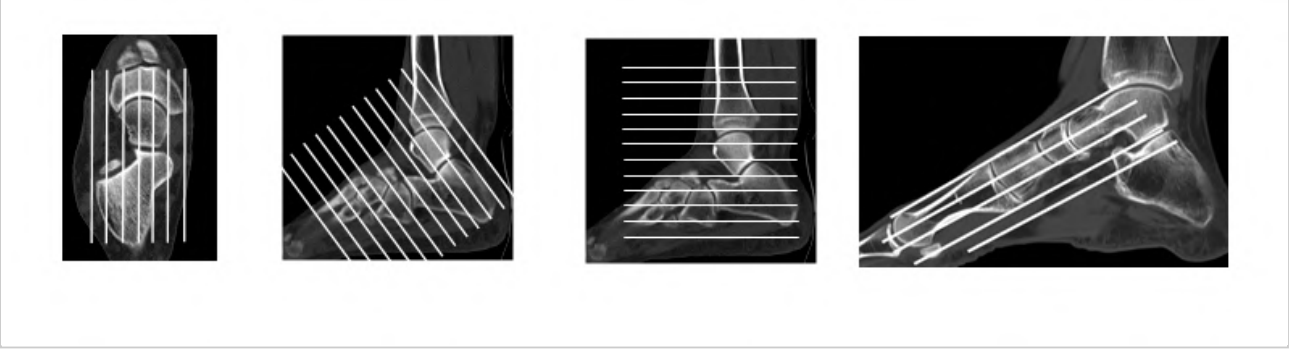
3 Planes of Ankle Reformats

Hindfoot/Midfoot (centered on Chopart's Joint) Appropriate for:

- Hindfoot fractures (calcaneus, talar body, sub-talar joint)
- Tarsal coalitions

Picture descriptions from left to right:

- Straight Sagittal- Off an axial
- Oblique Coronal- Off a sagittal
- Straight Axial- Off a sagittal
- Oblique Axial- Off a sagittal and parallel to MT



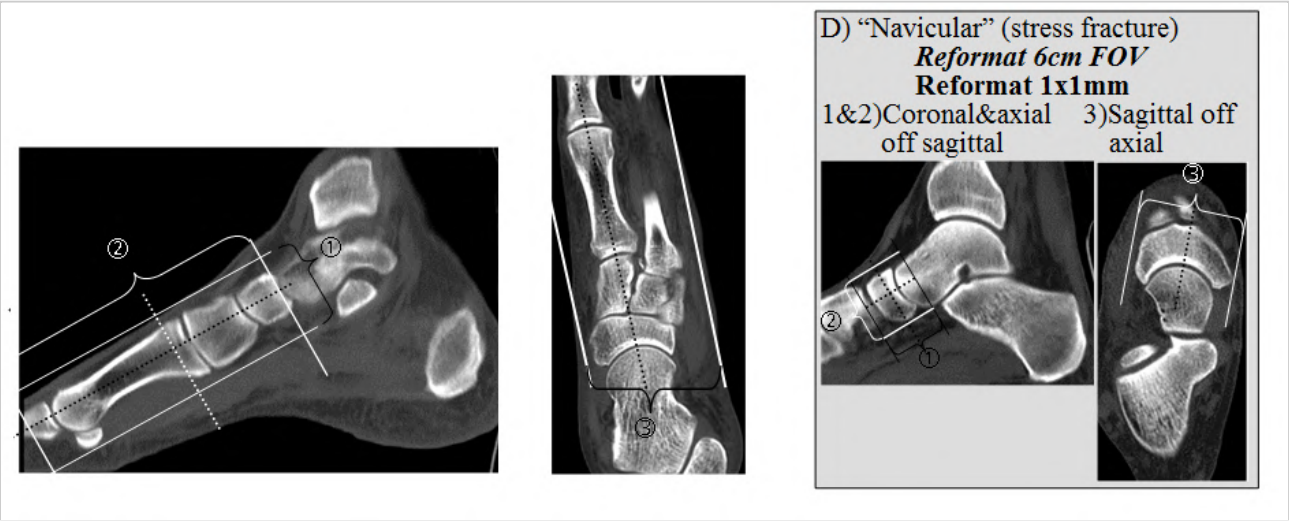
4 Planes of Mid-foot reformats

Forefoot/Midfoot (centered on Lisfranc's Joint) Appropriate for:

- Forefoot fractures (Lisfranc dislocation, metatarsals)

Picture descriptions from left to right: ALL PLANES RELATIVE TO 1ST METATARSAL (May have to oblique reference image to see 1st MT)

1. Short axis- Off a sagittal
2. Axial or long axis- Off a sagittal, 3x1.5mm
3. Sagittal- Off an axial, 3x1.5mm



3 Planes of Forefoot reformats

Navicular Appropriate for:

- Navicular Stress Fractures

Picture descriptions from left to right:

1. Coronal Navicular
2. Axial Navicular
3. Sagittal Navicular

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Distal Tibia:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For OCD:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	1	0.5	coronal
SA	Thin Bone	Manual	Average	2500/350	1	0.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Hindfoot/Midfoot:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
OBL CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
OBL AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Forefoot/Midfoot:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX Long	Thin Bone	Manual	Average	2500/350	3	1.5	axial
AX Short	Thin Bone	Manual	Average	2500/350	3	1.5	axial
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	120
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	120
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Medium Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.7**
kV	**120**
AEC type	**Manual mA**
mA Range	**(60-640)**
Manual mA	**320.0**
Noise Index	**13.0**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Series 2, Recons

	No Metal
Recon 1 (Primary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 2 (Secondary)	
DFOV	**22**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

MAR	If Metal
Recon 3 (Secondary)	
DFOV	**22**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Ankle/Foot/Distal Tibia (with Metal) 9.2

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Evaluation of treated fractures, fracture fixation, assess progress of osseous healing, arthritis, mineralized lesions, osteochondral lesions of the joints, and to evaluate the bone surrounding metallic implants. This protocol is also indicated in patients have undergone surgical ankle or hindfoot fusion (arthrodesis) to assess the extent of osseous union.

Oral Contrast

None

Pre-Scan Instructions

- Use a foot holder, if available.
- Patient supine.
- Feet together, centered in scanner.
- Toes pointing straight up.
- No gantry tilt.
- In most cases scan both feet together.
    - If feet cannot be brought together,position the patient such that the foot/ankle of interest is centered in the scanner.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

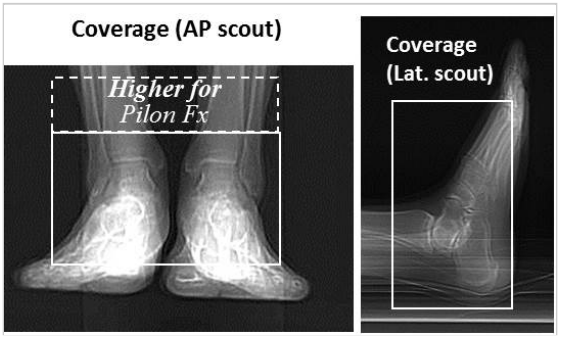
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

Scan Description

- Series 1 - PA and lateral scout
  - Coverage (see images)



Ankle coverage

- Series 2 - CT Ankle/Foot/Distal Tib
  - Coverage for Ankle/Distal Tibia: Start scan above syndesmosis (Tib/fib Joint)(Higher for pilon Fractures as noted in image.) End scan below calcaneus.
  - Coverage for Foot: Start scan above syndesmosis (Tib/fib Joint) include entire foot (tarsals, metatarsals and phalanges).

Reformat Instructions

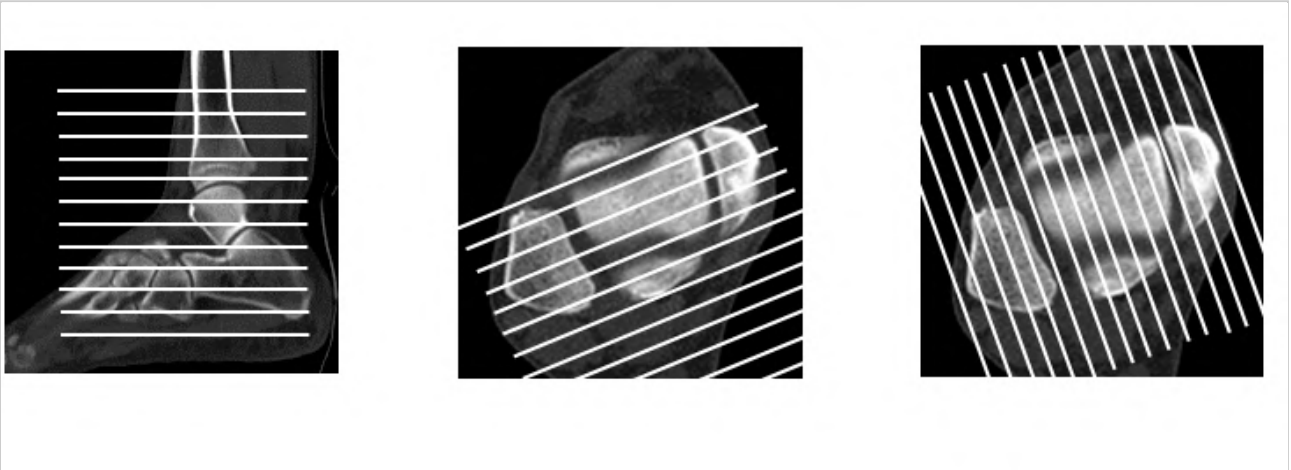
Use the Bone Window unless specified to use STD.

Ankl/Distal Tibia(centered on Ankle Joint) Appropriate for:

- Distal tibial fractures (Pilon, malleoli, triplane, juvenile Tillaux)
- Talar dome fractures (OCD)

Picture descriptions from left to right:

- Straight Axial- Off the sagittal, 3x1.5mm
- Mortise Coronal- Off an axial, 3x1.5mm
- Mortise Sagittal- Off an axial, 3x1.5mm



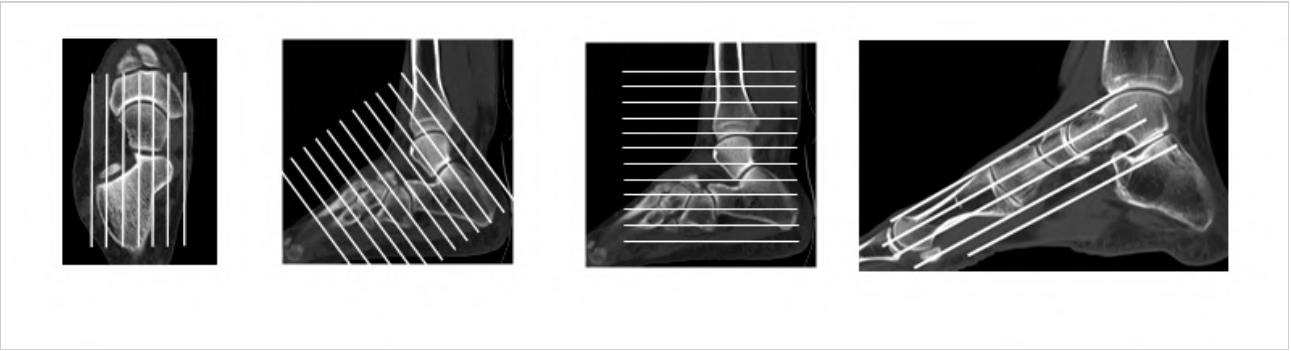
3 Planes of Ankle Reformats

Hindfoot/Midfoot (centered on Chopart's Joint) Appropriate for:

- Hindfoot fractures (calcaneus, talar body, sub-talar joint)
- Tarsal coalitions

Picture descriptions from left to right:

- Straight Sagittal- Off an axial
- Oblique Coronal- Off a sagittal
- Straight Axial- Off a sagittal
- Oblique Axial- Off a sagittal and parallel to MT



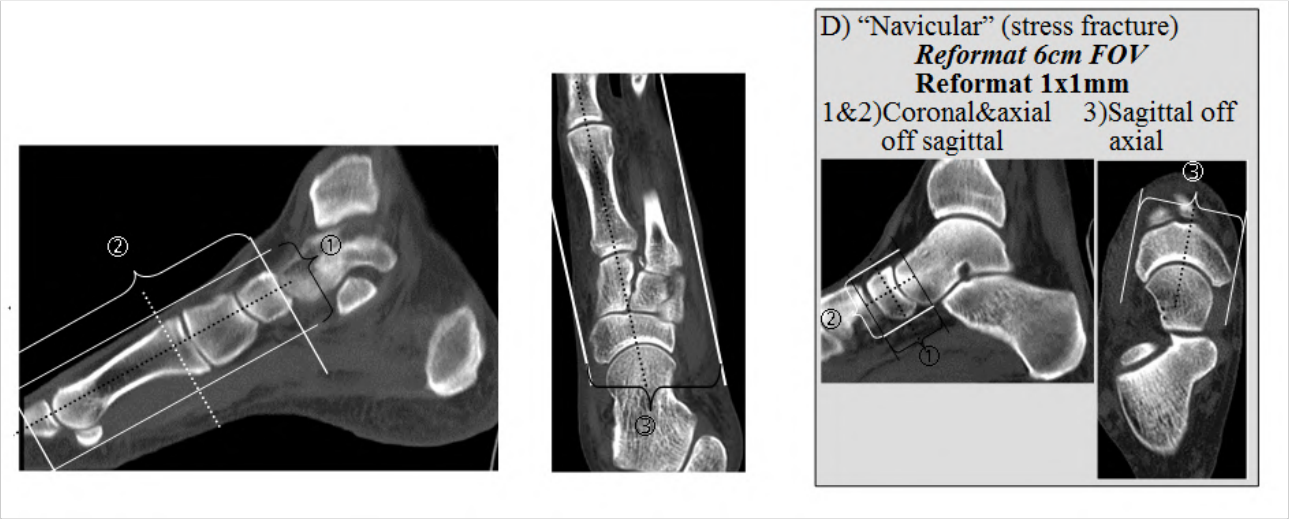
4 Planes of Mid-foot reformats

Forefoot/Midfoot (centered on Lisfranc's Joint) Appropriate for:

- Forefoot fractures (Lisfranc dislocation, metatarsals)

Picture descriptions from left to right: ALL PLANES RELATIVE TO 1ST METATARSAL (May have to oblique reference image to see 1st MT)

1. Short axis- Off a sagittal
2. Axial or long axis- Off a sagittal, 3x1.5mm
3. Sagittal- Off an axial, 3x1.5mm



3 Planes of Forefoot reformats

Navicular Appropriate for:

- Navicular Stress Fractures

Picture descriptions from left to right:

1. Coronal Navicular
2. Axial Navicular
3. Sagittal Navicular

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Distal Tibia:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For OCD:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	1	0.5	coronal
SA	Thin Bone	Manual	Average	2500/350	1	0.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Hindfoot/Midfoot:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
OBL CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
OBL AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Forefoot/Midfoot:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX Long	Thin Bone	Manual	Average	2500/350	3	1.5	axial
AX Short	Thin Bone	Manual	Average	2500/350	3	1.5	axial
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Navicular:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO NAV	Thin Bone	Manual	Average	2500/350	1	1	Coronal
AX NAV	Thin Bone	Manual	Average	2500/350	1	1	Axial
SA NAV	Thin Bone	Manual	Average	2500/350	1	1	Sagittal

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	140
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	140
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	Helical
Beam Collimation	40
Detector Rows	64.0
Detector Configuration	64x0.625
Scan FOV	Medium Body
Pitch	0.516
Speed (mm/rot)	20.60
Rotation Time (s)	1
kV	140
AEC type	Manual mA
mA Range	(80-570)
Manual mA	390.0
Noise Index	8.0
Slice Thickness (mm)	0.625
Interval (mm)	0.312

Series 2, Recons

	With Metal
Recon 1 (Primary)	
DFOV	22
Recon Type	Bone Plus
WW/WL	2500/350
Recon Option	Plus
Recon Option	IQ Enhance
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	0.625
Interval (mm)	0.312
Recon 2 (Secondary)	
DFOV	22
Recon Type	Standard
WW/WL	450/50
Recon Option	Plus
Recon Option	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium
Slice Thickness (mm)	0.625
Interval (mm)	0.312

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

MAR	If Metal
Recon 3 (Secondary)	
DFOV	22
Recon Type	Standard
WW/WL	450/50
Recon Option	Plus
Recon Option	IQ Enhance
Recon Option	MARS On
ASiR/ASiR256/DLIR	40% / 20% / Medium
Slice Thickness (mm)	0.625
Interval (mm)	0.312

Knee/Tibia (without Metal) 9.3

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

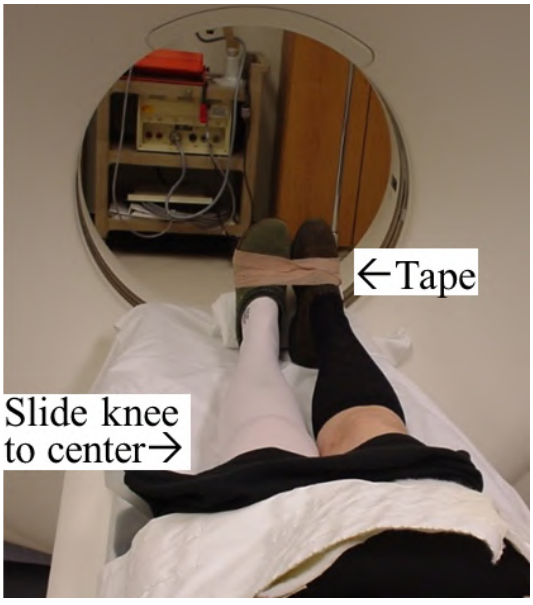
Assess the alignment and degree of displacement of fracture fragments, particularly at the articular surfaces. Also for the evaluation of arthritis, mineralized lesions, and to evaluate the bone surrounding metallic implants.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine.
- Slide patient over so that knee being imaged is centered in scanner. Scan only the side of interest.
- Tape the toes together to help stabilize knees.
  - In most cases it is fine to leave the other knee straight and within the scanning field.
  - If the other knee contains hardware/metal, try to bend it so it is NOT in the scanning field.
- Plaster casts are not problematic.



IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

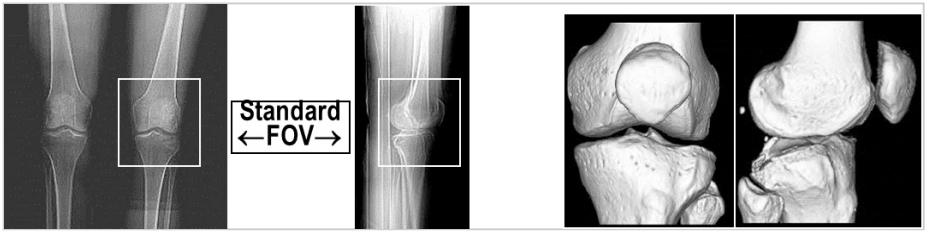
25 cm

The FOV must include:

- The entire patella
- Both femoral condyles in their entirety
- The proximal tibia through the level of the fibular head
- If scanning a metal knee prosthesis, it is necessary to cover the entire length of both the femoral and tibial components.

Scan Description

- Series 1 – PA and lateral scout
- Series 2 – CT Knee
    - Coverage (see images)

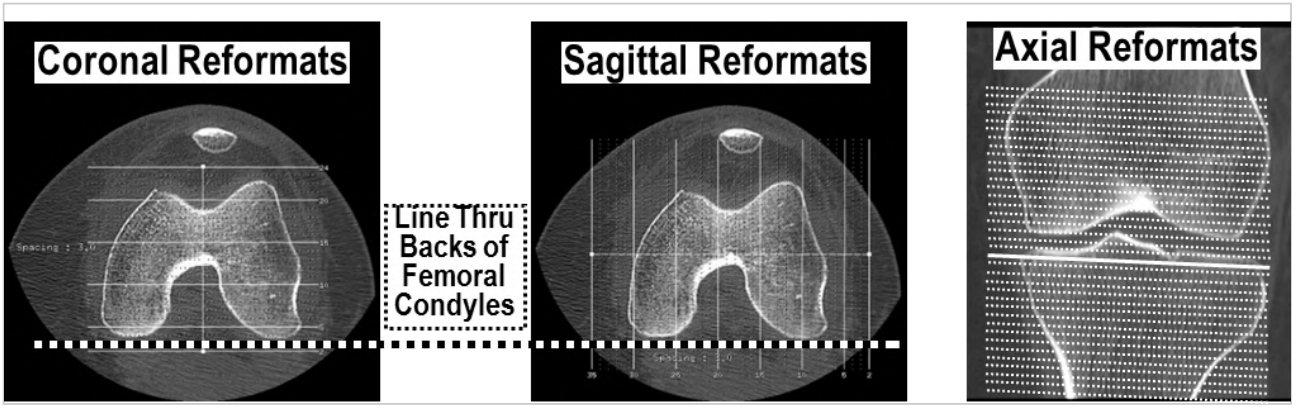


Knee FOV

Reformat Instructions

Reformatting Planes in the Bone Window unless specified to also do STD.

- All Knee CTs are reformatted in 3 orthogonal planes using the BonePlus source images.
    - Reformatted images should be stored using a “Bone” window (2000/350).
    - Unless specifically requested, it is not necessary to make “Standard” algorithm reformats.
- In most cases, make the reformats 3mm thick at 1.5mm intervals (no gap) in all 3 planes.
    - If the request is for “OCD” (Osteochondral Defect, Osteochondritis Desiccans) make the Coronal and sagittal reformats 1mm thick at 1mm intervals (no gap).
- Coronal & sagittal reformats are made off an axial reference image.
    - Parallel & perpendicular to a line through the back of the femoral condyles.



Three Knee Reformats

- Axial reformats are made off a mid-coronal reference image.
  - Parallel to the top if the tibial plateau.
  - Annotate as to “Right” or “Left”.
- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on Recon 2 (140D) and Recon 3 (110D) and send to ALI_Store. When naming the reformat please use 140D and 110D in the name so they can decifer the two.

If a long bone scan (tibia/fibula) is ordered, do CO/SA/AX reformat in 3x1.5 mm using the thin bone series.

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For OCD:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	1	0.5	coronal
SA	Thin Bone	Manual	Average	2500/350	1	0.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	120
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	120
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	Helical
Beam Collimation	40
Detector Rows	64.0
Detector Configuration	64x0.625
Scan FOV	Medium Body
Pitch	0.516
Speed (mm/rot)	20.60
Rotation Time (s)	0.7
kV	120
AEC type	Manual mA
mA Range	(60-640)
Manual mA	320.0
Noise Index	13.0
Slice Thickness (mm)	0.625
Interval (mm)	0.312

Series 2, Recons

	No Metal
Recon 1 (Primary)	
DFOV	**25**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 2 (Secondary)	
DFOV	**25**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

MAR	Recon 3 (Secondary)
DFOV	**25**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Knee/Tibia (with Metal) 9.4

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

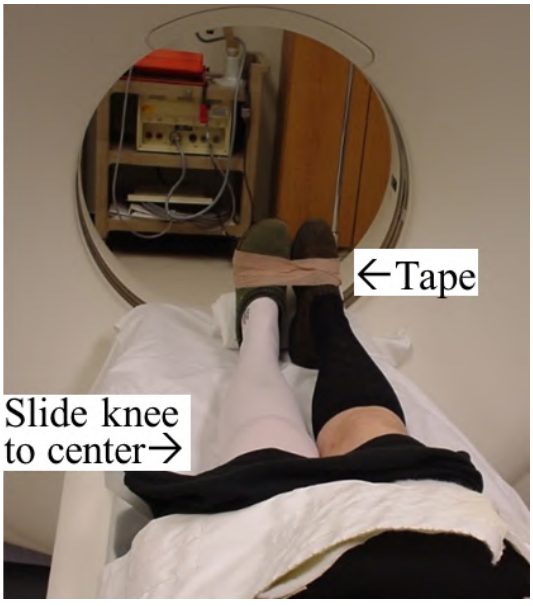
Assess the alignment and degree of displacement of fracture fragments, particularly at the articular surfaces. Also for the evaluation of arthritis, mineralized lesions, and to evaluate the bone surrounding metallic implants.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine.
- Slide patient over so that knee being imaged is centered in scanner. Scan only the side of interest.
- Tape the toes together to help stabilize knees.
  - In most cases it is fine to leave the other knee straight and within the scanning field.
  - If the other knee contains hardware/metal, try to bend it so it is NOT in the scanning field.
- Plaster casts are not problematic.



IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

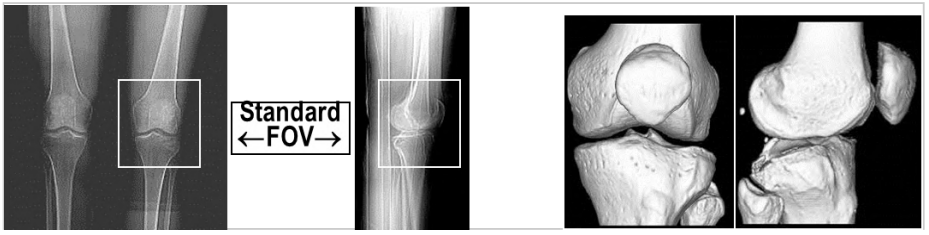
25 cm

The FOV must include:

- The entire patella
- Both femoral condyles in their entirety
- The proximal tibia through the level of the fibular head
- If scanning a metal knee prosthesis, it is necessary to cover the entire length of both the femoral and tibial components.

Scan Description

- Series 1 – PA and lateral scout
- Series 2 – CT Knee
    - Coverage (see images)

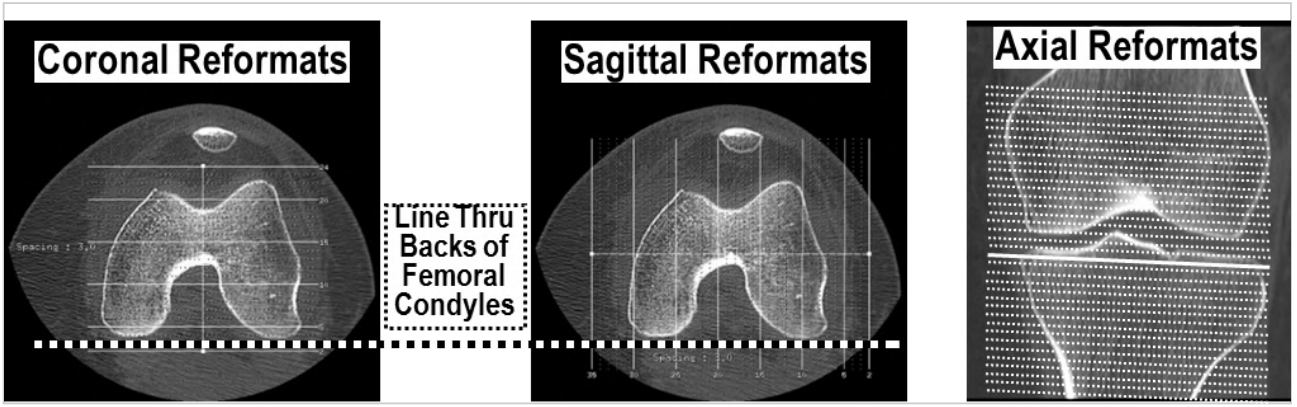


Knee FOV

Reformat Instructions

Reformatting Planes in the Bone Window unless specified to also do STD.

- All Knee CTs are reformatted in 3 orthogonal planes using the BonePlus source images.
    - Reformatted images should be stored using a “Bone” window (2000/350).
    - Unless specifically requested, it is not necessary to make “Standard” algorithm reformats.
- In most cases, make the reformats 3mm thick at 1.5mm intervals (no gap) in all 3 planes.
    - If the request is for “OCD” (Osteochondral Defect, Osteochondritis Desiccans) make the Coronal and sagittal reformats 1mm thick at 1mm intervals (no gap).
- Coronal & sagittal reformats are made off an axial reference image.
    - Parallel & perpendicular to a line through the back of the femoral condyles.



Three Knee Reformats

- Axial reformats are made off a mid-coronal reference image.
  - Parallel to the top if the tibial plateau.
  - Annotate as to “Right” or “Left”.
- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on Recon 2 (140D) and Recon 3 (110D) and send to ALI_Store. When naming the reformat please use 140D and 110D in the name so they can decifer the two.

If a long bone scan (tibia/fibula) is ordered, do CO/SA/AX reformat in 3x1.5 mm using the thin bone series.

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

For Adults:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For OCD:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	1	0.5	coronal
SA	Thin Bone	Manual	Average	2500/350	1	0.5	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

For Pediatrics:

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	1.25	0.625	axial
CO	Thin Bone	Manual	Average	2500/350	1.25	0.625	coronal
SA	Thin Bone	Manual	Average	2500/350	1.25	0.625	sagittal
AX ST	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

If you have Hi-Res/HD mode: UW recommends turning Hi-Res mode "ON", but using the regular (i.e., non HD) kernels. HD kernels increase the image noise. See *Rubert, Nicholas, Timothy Szczykutowicz, and Frank Ranallo. "Improvement in CT image resolution due to the use of focal spot deflection and increased sampling." Journal of applied clinical medical physics 17, no. 3 (2016): 452-466.*

Series 1, Scout

Scout 1 kV	140
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	140
Scout 2 mA	40
Scout 2 Angle	90
WW/WL for Scout	500/50

Series 2, Scan Phase

Scan Type	Helical
Beam Collimation	40
Detector Rows	64.0
Detector Configuration	64x0.625
Scan FOV	Medium Body
Pitch	0.516
Speed (mm/rot)	20.60
Rotation Time (s)	1
kV	140
AEC type	Manual mA
mA Range	(80-570)
Manual mA	390.0
Noise Index	8.0
Slice Thickness (mm)	0.625
Interval (mm)	0.312

Series 2, Recons

Recon 1 (Primary)	
DFOV	**25**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 2 (Secondary)	
DFOV	**25**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

	MAR Recon
Recon 3 (Secondary)	
DFOV	**25**
Recon Type	**Standard**
WW/WL	**450/50**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Mako Knee 9.7

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

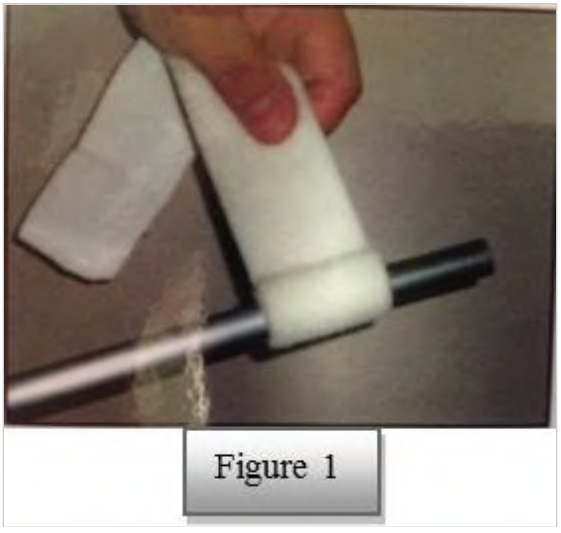
Pre robot surgery scan for MAKO knee procedure.

Oral Contrast

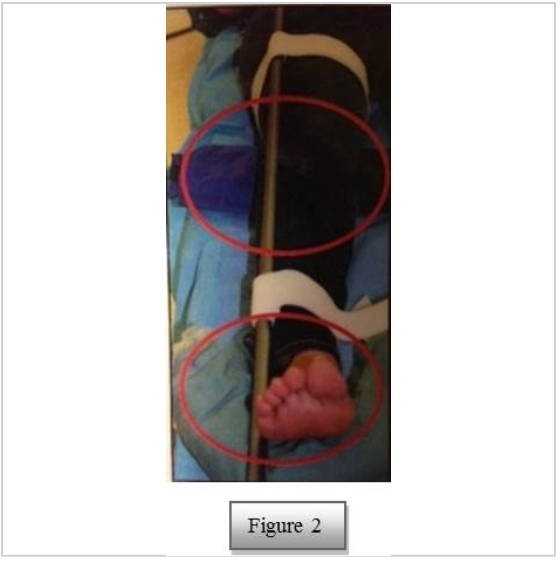
None

Pre-Scan Instructions

- Position patient supine, feet first with foot secured in an upright postion with a rolled towel or blanket wrapped around the bottom of the foot to secure the ankle as shown.
- Elevate the knee of the patient slightly with a rolled towel or blanket.
- Wrap the velcro strap one complete revolution around the rod as shown in the image. Do this for both Velcro straps, one at the hip position and one at the ankle position as shown.
- Set the Motion Rod on the patient to pass From just proximal of Hip Center to distal of Ankle Center as shown in the image.
- Adjust the femoral and tibial straps to secure the rod.
- Verifty the rod is in both anterior/posterior and medial/lateral field of views for all scan regions.
- The Velcro strap must be wrapped around the rod in one complete revolution, before wrapping around the leg. Straps should be snug, but not excessively tight.



velcro being wrapped around rod



rod placement

IV Contrast Parameters

None

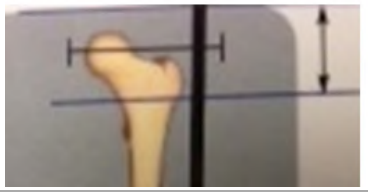
Field of View

- Hip Region: Do not exceed 50 cm
- Knee Region: Do not exceed 25 cm

- Ankle Region: Do not exceed 50 cm

Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - MAKO Knee (During the scan, the pelvis, leg, and Motion Rod Must remain motionless!!)
  - Mako Knee Coverage:
    - Hip: Include entire femoral head and motion rod, center around femoral head
    - Knee: Include distal boundry of tibial tuberosity, entire patellofemoral region and motion rod, center around joint line FOV Do not exceed 250 mm
    - Ankle: Include medial and lateral malleoli and motion rod, center around ankle joint FOV Do not exceed 500mm

Image	Instructions
	**HIP region:** ▪ **2-5mm interval spacing** ▪ **Include entire femoral head and motion rod, center around femoral head** ▪ **FOV should not exceed 500mm**
	KNEE region: ▪ **.5-1mm interval spacing no gap/no overlap** ▪ **Include distal boundry of tbial tuberosity, entire patellofemoral region and motion rod, center around joint line** ▪ **FOV should not exceed 250mm**
	ANKLE region: ▪ **2-5mm interval spacing** ▪ **Include medial and lateral malleoli and motion rod, center around ankle joint** ▪ **FOV should not exceed 500mm**

Reformat Instructions

2D's of Knee only

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Bone	Manual	Average	2500/350	3	1.5	axial
CO	Thin Bone	Manual	Average	2500/350	3	1.5	coronal
SA	Thin Bone	Manual	Average	2500/350	3	1.5	sagittal

Networking

- Axial Images to Thin PACS (ALI_Source) and Reformats and Scouts to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Any Size
Scout 1 kV	**120**
Scout 1 mA	**10**
Scout 1 Angle	**180**
Scout 2 kV	**120**
Scout 2 mA	**40**
Scout 2 Angle	**90**
WW/WL for Scout	**500/50**

Series 2, Group 1, Scan Phase

	Any Size
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Large Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**Manual mA**
mA Range	**(500-500)**
Manual mA	**500**
Noise Index	**5.0**
Slice Thickness (mm)	**5**
Interval (mm)	**5**

Series 2, Group 1, Recons

	Any Size
Recon 1 (Primary)	
DFOV	**50**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Full**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**5.0**
Interval (mm)	**5.0**

Series 2, Group 2, Scan Phase

	Any Size
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Large Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**Manual mA**
mA Range	**(250-250)**
Manual mA	**250**
Noise Index	**5.0**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.625**

Series 2, Group 2, Recons

	Any Size
Recon 1 (Primary)	
DFOV	**25**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Full**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.625**

Series 2, Group 3, Scan Phase

	Any Size
Scan Type	**Helical**
Beam Collimation	**40**
Detector Rows	**64.0**
Detector Configuration	**64x0.625**
Scan FOV	**Large Body**
Pitch	**0.516**
Speed (mm/rot)	**20.60**
Rotation Time (s)	**0.6**
kV	**120**
AEC type	**Manual mA**
mA Range	**(250-250)**
Manual mA	**250**
Noise Index	**5.0**
Slice Thickness (mm)	**5**
Interval (mm)	**5**

Series 2, Group 3, Recons

	Any Size
Recon 1 (Primary)	
DFOV	**50**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Full**
Recon Option	
ASiR/ASiR256/DLIR	**None**
Slice Thickness (mm)	**5.0**
Interval (mm)	**5.0**

Femoral Anteversion/Lower Extremity Rotational Study 9.8/9.9/9.10

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

For evaluation of the rotation angle of the femoral necks relative to the femoral condyles, bilaterally. A secondary measurement is the femoral lengths. This protocol may also be used for tibial torsion imaging requests.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine, feet first, legs flat on the table.
  - No cushions/wedges under legs/feet
- Legs as close together as possible.
  - Consider taping feet together (or using foot-board).
  - Consider taping knees if extra stability is needed.

IV Contrast Parameters

None

Field of View

36 cm

Scan Description

- Series 1 – PA and lateral scout
- Series 2 – Helical Scan - 3 small groups covering bilateral hips, knees, and ankles.
  - Scan ankles ONLY if Tibias are clinically requested
    - 1st group: Scan just above femoral heads through lesser trochanters
    - 2nd group: Scan from the distal femoral metaphysis through tops of tibias
    - 3rd group: Scan just above syndesmosis, through talar domes

Femoral Anteversion

Reformat Instructions

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

None.

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**100**	**120**	**140**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**100**	**120**	**140**
Scout 2 mA	**40**	**40**	**80**
Scout 2 Angle	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.28**	**0.35**	**0.5**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-460)**	**(60-550)**	**(40-450)**
Manual mA	**290.0**	**280.0**	**260.0**
Noise Index	**10.5**	**12.0**	**15.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Group 1, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.28**	**0.28**	**0.28**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(20-150)**	**(25-230)**	**(25-270)**
Manual mA	**100.0**	**110.0**	**150.0**
Noise Index	**8.0**	**9.0**	**12.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Group 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Group 3, Scan Phase

	Small	Medium	Large
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**40**	**40**	**40**
Detector Rows	**64.0**	**64.0**	**64.0**
Detector Configuration	**64x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.516**	**0.516**	**0.516**
Speed (mm/rot)	**20.60**	**20.60**	**20.60**
Rotation Time (s)	**0.28**	**0.28**	**0.28**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(20-150)**	**(25-230)**	**(25-270)**
Manual mA	**100.0**	**110.0**	**150.0**
Noise Index	**8.0**	**9.0**	**12.0**
Slice Thickness (mm)	**5**	**5**	**5**
Interval (mm)	**3.0**	**3.0**	**3.0**

Series 2, Group 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**40**	**50**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

Soft Tissue Extremity with IV Contrast 9.24/9.25/9.26

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Pediatric Patients Under 13 years of age: See Appendix for Technique Instruction

Follow Link: Guidance for pediatric extremity MSK protocols

Indication

Detection or characterization of mass or infection.

Oral Contrast

None

Pre-Scan Instructions

If scanning the arm

- Patient positioned prone with affected extremity overhead in "superman" position and positioned in the center of the scanner. Non-affected extremity (with IV) at patient's side.

If scanning the legs

- Place feet close together, straight, and near the center of the scanner.

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 mg/mL injection at a rate of 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Same as previous study or as small as appropriate

Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - Helical Scan
  - Coverage:
    - Variable: according to radiologist's order. Only scan the extremity of interest.
    - If ordered, perform an additional reconstruction at a FOV wide enough to cover both legs (if a lower extremity). For this extra recon, there will be a recon already set-up, you just need to turn it

on. It should be at 5 mm by 2.5 mm and a standard kernel.
- Timing: 90 seconds from the start of the injection.

Reformat Instructions

No special instructions for the standard reformats for this protocol.

- **If a HD/GSI Scan**: Recons & Reformats: Do all reformats specific for this protocol on the 140 keV BonePlus recon (QC is recon 1) and send to ALI_Store.

Reformats

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
AX	Thin Soft Tissue	Manual	Average	450/50	3	1.5	axial
CO	Thin Soft Tissue	Manual	Average	450/50	3	1.5	coronal
SA	Thin Soft Tissue	Manual	Average	450/50	3	1.5	sagittal

Networking

- All images are networked to PACS (ALI_Store), except the thins (including thin MAR recons) send to Thin PACS (ALI_Source).
- Note: If smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	100	120	140
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	100	120	140
Scout 2 mA	40	40	80
Scout 2 Angle	90	90	90
WW/WL for Scout	500/50	500/50	500/50

Series 2, Scan Phase

	Small	Medium	Large
Scan Type	Helical	Helical	Helical
Beam Collimation	80	80	80
Detector Rows	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.992	0.992	0.992
Speed (mm/rot)	79.40	79.40	79.40
Rotation Time (s)	1	1	1
kV	80	100	120
AEC type	smart mA	smart mA	smart mA
mA Range	(70-600)	(60-700)	(70-580)
Manual mA	240.0	260.0	360.0
Noise Index	11.5	15.0	18.0
Slice Thickness (mm)	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**2500/350**	**2500/350**	**2500/350**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

If your Scanner has MAR software, turn this additional recon "ON" in the presence of metal.

MAR	Small	Medium	Large
Recon 3 (Secondary)			
DFOV	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Chest - Standard (Routine and High-Resolution) (Higher Image Quality) 15.1.8/15.2.8/15.4.8/15.6.8/15.8.8

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Chest - Standard (Routine and High-Resolution) 15.1.1/15.2.1/15.4.1/15.6.1/15.8.1

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**12**	**12**	**12**	**12**	**12**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.375**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**110.00**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.5**	**0.5**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(45-290)**	**(50-340)**	**(50-300)**	**(70-450)**	**(90-570)**
Manual mA	**190.0**	**210.0**	**190.0**	**280.0**	**360.0**
Noise Index	**7.5**	**8.5**	**9.5**	**10.5**	**10.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 3 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	BonePlus	BonePlus	BonePlus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1500/-700
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 4 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	BonePlus	BonePlus	BonePlus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1500/-700
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625

Series 3, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	80	80	80	80	100
Scout 1 mA	10	10	10	10	10
Scout 1 Angle	180	180	180	180	180
Scout 2 kV	80	80	80	80	100
Scout 2 mA	40	40	40	40	40
Scout 2 Angle	90	90	90	90	90
WW/WL for Scout	500/50	500/50	500/50	500/50	500/50

Series 4, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.531**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**122.50**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.28**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-250)**	**(60-390)**	**(90-540)**	**(110-670)**
Manual mA	**120.0**	**160.0**	**250.0**	**340.0**	**430.0**
Noise Index	**9.0**	**10.0**	**11.5**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 4, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Chest Pectus (Higher Image Quality) 15.1.10/15.2.10/15.4.10/15.6.10/15.8.10

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Chest Pectus 15.1.3/15.2.3/15.4.3/15.6.3/15.8.3

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.531**	**1.375**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**122.50**	**110.00**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.28**	**0.28**	**0.35**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-200)**	**(40-260)**	**(60-370)**	**(90-560)**	**(90-560)**
Manual mA	**130.0**	**160.0**	**230.0**	**350.0**	**360.0**
Noise Index	**9.0**	**10.0**	**11.0**	**13.0**	**12.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1900/-475**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 4 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Chest CTPA for PE (Higher Image Quality) 15.1.11/15.2.11/15.4.11/15.6.11/15.8.11

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Chest CTPA for PE 15.1.4/15.2.4/15.4.4/15.6.4/15.8.4

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**
Monitoring ISD (sec)	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.531**	**1.375**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**122.50**	**110.00**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.5**	**0.5**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(45-290)**	**(50-340)**	**(50-300)**	**(70-450)**	**(90-570)**
Manual mA	**190.0**	**210.0**	**190.0**	**280.0**	**360.0**
Noise Index	**7.5**	**8.5**	**9.5**	**10.5**	**10.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**BonePlus**	**BonePlus**	**BonePlus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**None**	**None**	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**
Recon 3 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Routine Chest/Abd/Pelvis (Higher Image Quality) 15.1.12/15.2.12/15.4.12/15.6.12/15.8.12

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Routine Chest/Abd/Pelvis 15.1.5/15.2.5/15.4.5/15.6.5/15.8.5

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**20.0**	**20.0**	**20.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**30**	**30**	**30**	**30**	**30**
Diagnostic Delay	**20**	**20**	**20**	**20**	**20**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.6**	**0.7**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-330)**	**(70-375)**	**(80-510)**	**(90-550)**
Manual mA	**230.0**	**210.0**	**260.0**	**320.0**	**350.0**
Noise Index	**6.5**	**7.0**	**8.0**	**9.0**	**9.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 3 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	BonePlus	BonePlus	BonePlus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1900/-475
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 4 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	BonePlus	BonePlus	BonePlus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1500/-700
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625

Trauma Chest/Abd/Pelvis (Higher Image Quality) 15.1.13/15.2.13/15.4.13/15.6.13/15.8.13

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Trauma Chest/Abd/Pelvis 15.1.6/15.2.6/15.4.6/15.6.6/15.8.6

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**10.0**	**10.0**	**10.0**	**10.0**	**15.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Group 1, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**0.992**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**	**1**	**1**
kV	**70**	**70**	**70**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-320)**	**(60-360)**	**(90-540)**	**(110-670)**
Manual mA	**230.0**	**200.0**	**230.0**	**340.0**	**430.0**
Noise Index	**5.0**	**5.5**	**6.0**	**7.0**	**6.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 1, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 3 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	BonePlus	BonePlus	BonePlus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1500/-700
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625

Recon 4 (Secondary)					
DFOV	15	15	15	16	16
Recon Type	Soft	Soft	Soft	Soft	Soft
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	60% / 30% / Medium	60% / 30% / Medium	60% / 30% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 5 (Secondary)					
DFOV	15	15	15	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 6 (Secondary)					
DFOV	12	12	12	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	0.625	0.625	0.625	0.625	0.625
Interval (mm)	0.312	0.312	0.312	0.312	0.312

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Series 2, Group2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**0.992**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**	**1**	**1**
kV	**70**	**70**	**70**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-320)**	**(60-360)**	**(90-540)**	**(110-670)**
Manual mA	**230.0**	**200.0**	**230.0**	**340.0**	**430.0**
Noise Index	**5.0**	**5.5**	**6.0**	**7.0**	**6.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Recon 7 (Secondary)					
DFOV	15	15	15	16	16
Recon Type	Soft	Soft	Soft	Soft	Soft
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	60% / 30% / Medium	60% / 30% / Medium	60% / 30% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 8 (Secondary)					
DFOV	15	15	15	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 9 (Secondary)					
DFOV	12	12	12	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	0.625	0.625	0.625	0.625	0.625
Interval (mm)	0.312	0.312	0.312	0.312	0.312

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	80	80	80	80	80
Detector Rows	128.0	128.0	128.0	128.0	128.0
Detector Configuration	128x0.625	128x0.625	128x0.625	128x0.625	128x0.625
Scan FOV	Small Body	Small Body	Small Body	Medium Body	Medium Body
Pitch	1.375	0.992	0.992	0.992	0.992
Speed (mm/rot)	110.00	79.40	79.40	79.40	79.40
Rotation Time (s)	0.28	0.28	0.35	0.6	0.7
kV	70	70	70	80	80
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(60-360)	(50-330)	(70-375)	(80-510)	(90-550)
Manual mA	230.0	210.0	260.0	320.0	350.0
Noise Index	6.5	7.0	8.0	9.0	9.0
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Routine Abd/Pelvis/Flank Pain (Higher Image Quality) 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Routine Abd/Pelvis 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**25.0**	**25.0**	**30.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.6**	**0.7**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-330)**	**(70-375)**	**(80-510)**	**(90-550)**
Manual mA	**230.0**	**210.0**	**260.0**	**320.0**	**350.0**
Noise Index	**6.5**	**7.0**	**8.0**	**9.0**	**9.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Acute Appendicitis - Abd/Pelvis (Higher Image Quality) 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Acute Appendicitis - Abd/Pelvis 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Acquisition Parameters

This protocol uses the same acquisition parameters as Routine Abd/Pelvis/Flank Pain (Higher Image Quality) 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6

Renal Stone/Flank Pain (Higher Image Quality) 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Renal Stone/Flank Pain 16.1.1/16.2.1/16.4.1/16.6.1/16.8.1

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.6**	**0.7**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-330)**	**(70-375)**	**(80-510)**	**(90-550)**
Manual mA	**230.0**	**210.0**	**260.0**	**320.0**	**350.0**
Noise Index	**6.5**	**7.0**	**8.0**	**9.0**	**9.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-55 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Triphasic Liver (Higher Image Quality) 16.1.8/16.2.8/16.4.8/16.6.8/16.8.8

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Triphasic Liver 16.1.3/16.2.3/16.4.3/16.6.3/16.8.3

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**10**	**10**	**10**	**20**	**20**
Monitoring Delay (sec)	**10.0**	**10.0**	**10.0**	**10.0**	**10**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**80**	**80**	**80**	**80**	**80**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Group 1, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**0.992**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**	**1**	**1**
kV	**70**	**70**	**70**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-320)**	**(60-360)**	**(90-540)**	**(110-670)**
Manual mA	**230.0**	**200.0**	**230.0**	**340.0**	**430.0**
Noise Index	**5.0**	**5.5**	**6.0**	**7.0**	**6.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 1, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 2, Group 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.6**	**0.7**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-330)**	**(70-375)**	**(80-510)**	**(90-550)**
Manual mA	**230.0**	**210.0**	**260.0**	**320.0**	**350.0**
Noise Index	**6.5**	**7.0**	**8.0**	**9.0**	**9.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Series 2, Group 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.6**	**0.7**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-330)**	**(70-375)**	**(80-510)**	**(90-550)**
Manual mA	**230.0**	**210.0**	**260.0**	**320.0**	**350.0**
Noise Index	**6.5**	**7.0**	**8.0**	**9.0**	**9.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Group 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

DLIR Limitations:

1. DLIR is not available on the Primary Recon.
2. DLIR is only compatible with the Standard Algorithm. So, in instances where the primary recon is Soft algorithm,(i.e. many Neuro Protocols) the subsequent recons will be in Standard Algorithm to enable DLIR. The slight difference between the Soft and Standard Algorithms is outweighed by the improvement in image quality with DLIR enabled.
3. DLIR requires an interval exactly half of the slice thickness.
4. DLIR doesn't allow an interval of 0.312 mm. So, if you are on a DLIR enabled scanner, the thin 0.625 recon will be at 0.625x0.625 mm. On all other scanners the thin recon will be at 0.625x0.312 mm.
5. DLIR is not available at 80 kVp.

Trauma Abd/Pelvis (Higher Image Quality) 16.1.9/16.2.9/16.4.9/16.6.9/16.8.9

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Clinical Instructions for this protocol are identical to Trauma Abd/Pelvis 16.1.4/16.2.4/16.4.4/16.6.4/16.8.4

Acquisition Parameters

Series 1, Scout

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scout 1 kV	**80**	**80**	**80**	**80**	**100**
Scout 1 mA	**10**	**10**	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**	**180**	**180**
Scout 2 kV	**80**	**80**	**80**	**80**	**100**
Scout 2 mA	**40**	**40**	**40**	**40**	**40**
Scout 2 Angle	**90**	**90**	**90**	**90**	**90**
WW/WL for Scout	**500/50**	**500/50**	**500/50**	**500/50**	**500/50**

Series 2, Smart Prep

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
mA	**20**	**40**	**40**	**40**	**40**
Monitoring Delay (sec)	**20.0**	**20.0**	**25.0**	**25.0**	**30.0**
Monitoring ISD (sec)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Enhancement Threshold (HU)	**50**	**50**	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**0.992**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**79.40**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.35**	**0.5**	**0.7**	**1**	**1**
kV	**70**	**70**	**70**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-320)**	**(60-360)**	**(90-540)**	**(110-670)**
Manual mA	**230.0**	**200.0**	**230.0**	**340.0**	**430.0**
Noise Index	**5.0**	**5.5**	**6.0**	**7.0**	**6.5**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 2, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	3.75	3.75	3.75	3.75	3.75
Interval (mm)	2.25	2.25	2.25	2.25	2.25
Recon 2 (Secondary)					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 3 (Secondary)					
DFOV	15	15	15	16	16
Recon Type	Soft	Soft	Soft	Soft	Soft
WW/WL	450/50	450/50	450/50	450/50	450/50
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	60% / 30% / Medium	60% / 30% / Medium	60% / 30% / Medium	40% / 20% / Medium	40% / 20% / Medium
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 4 (Secondary)					
DFOV	15	15	15	16	16
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	0.625	0.625	0.625	0.625	0.625
Recon 5 (Secondary)					
DFOV	12	12	12	12	12
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	2500/350	2500/350	2500/350	2500/350	2500/350
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASiR/ASiR256/DLIR	None	None	None	None	None
Slice Thickness (mm)	0.625	0.625	0.625	0.625	0.625
Interval (mm)	0.312	0.312	0.312	0.312	0.312

Series 3, Scan Phase

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**80**	**80**	**80**	**80**	**80**
Detector Rows	**128.0**	**128.0**	**128.0**	**128.0**	**128.0**
Detector Configuration	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**	**128x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1.375**	**0.992**	**0.992**	**0.992**	**0.992**
Speed (mm/rot)	**110.00**	**79.40**	**79.40**	**79.40**	**79.40**
Rotation Time (s)	**0.28**	**0.28**	**0.35**	**0.6**	**0.7**
kV	**70**	**70**	**70**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-360)**	**(50-330)**	**(70-375)**	**(80-510)**	**(90-550)**
Manual mA	**230.0**	**210.0**	**260.0**	**320.0**	**350.0**
Noise Index	**6.5**	**7.0**	**8.0**	**9.0**	**9.0**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**

Series 3, Recons

	Pink/Newborn/0-26 cm	Red Purple/6 mo.-2.5 years/27-31 cm	Yellow White/3-7 years/32-37 cm	Blue Orange/8-12 years/38-43 cm	Green Black/13-18 years/44-60 cm
Recon 1 (Primary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option					
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
Recon 2 (Secondary)					
DFOV	**20**	**20**	**20**	**25**	**25**
Recon Type	**Detail**	**Detail**	**Detail**	**Detail**	**Detail**
WW/WL	**450/50**	**450/50**	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**	**Plus**	**Plus**
Recon Option	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**	**IQ Enhance**
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**	**0.625**	**0.625**

Pediatric Neck/Chest/Abd/Pelvis

Pediatric patients between the age of 18-20 yrs: to be scanned C/A/P in one scan. Do not scan using two groups.

Additional resources for this protocol are available here https://uwgect.wiscweb.wisc.edu/resources/

Clinical Instructions

Indication

Chest with contrast: Initial evaluations for metastatic disease. Chest without contrast: Follow-up osteosarcoma mets

C/A/P: Neoplasm, fever of unknown origin, infection. Metastatic disease workup/follow-up.

Neck: mass, globus sensation, lymphadenopathy, head and neck cancer evaluation/follow-up, pharyngitis, tonsillar or peritonsillar abscess, neck abscess

Oral Contrast

These are target volumes for oral contrast. If the child is vomiting or otherwise unable to tolerate the total amount, it can obviously be decreased. For optimal interpretation of these scans, encourage the above amounts.

Hydrate ER patient if time allows

Mix 4mL Iohexol 300 (Omnipaque) in 200mL of a clear liquid.

Age	Weight (lbs)	Total Oral Contrast Quantity
0 - 1	10 - 25	100 mLs
1 - 3	20 - 40	200 mLs
3 - 5	30 - 60	400 mLs
5 - 10	40 - 90	600 mLs
11+	over 90	800 mLs +

Pre-Scan Instructions

CAP portion

- To properly select a pediatric protocol size:
  - First use the patient's age to select scout parameters
  - After acquiring the scout, measure the PA + Lateral widths
  - Scan using the protocol corresponding to the sum of the AP+Lateral measurements (you may need to select a protocol that does not match the patient's age)

Color Grouping	Pink	Red/Purple	Yellow/White	Blue/Orange	Green/Black
Age	Newborn	6 mo - 2.5 yr	3-7 yr	8-12 yr	13-18 yr
PA + Lat (cm)	0-26	27-31	32-37	38-43	44-60

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats. If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, **scan in one group**, **not two**.

Neck portion

- Patient supine, PA and lateral scouts from sella to mid chest (include the aortic arch), no gantry angle

- Have the patient remove any dentures or removable teeth, please place the shoulders as low possible
- Positioning: Tilt the patient's head so that a line connecting the lateral canthus of the eye and the EAC is perpendicular to the CT tabletop (see head CT protocol).
- Remove all metallic and high-density objects from the scanning area.
- If the indication is for neck mass, especially for first time scans, please have patient place a BB on the palpable mass.
- Perform angled views if there are artifacts from dental fillings or metal hardware. Check with Radiologist before performing angled views on Pediatric patients, we rarely do these (see below)

IV Contrast Parameters

When scanning a pediatric Neck + C/A/P with contrast (based on patient's weight)

1. Use the weight conversion provided below to get the total contrast volume

Scan Combination	Contrast Dosage	Injection Rate
C/A/P + Neck Combo split the total contrast into thirds.		
C/A/P	**Use 2/3 total volume Iohexol 300 mgI/mL + 30 mL NaCl flush**	**1.5 - 3 mL/s**
Neck	**Use remaining 1/3 total volume Iohexol 300 mgI/mL + 20 mL NaCl flush**	**2 mL/s**
Change the Prep Delay to 20 seconds (from 45 seconds) on the Neck protocol.		
Chest + Neck Combo split the total contrast in half.		
Chest	**Use 1/2 total volume Iohexol 300 mgI/mL + 30 mL NaCl flush**	**1.5 - 3 mL/s**
Neck	**Use remaining 1/2 total volume Iohexol 300 mgI/mL + 20 mL NaCl flush**	**2 mL/s**
Change the Prep Delay to 20 seconds (from 45 seconds) on the Neck protocol.		

Field of View

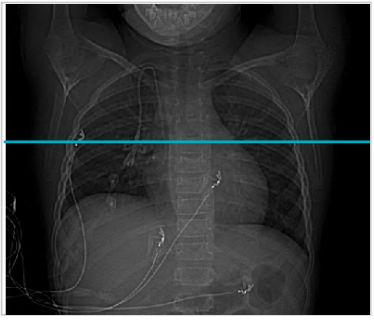
Same as previous study or as small as appropriate

Scan Description

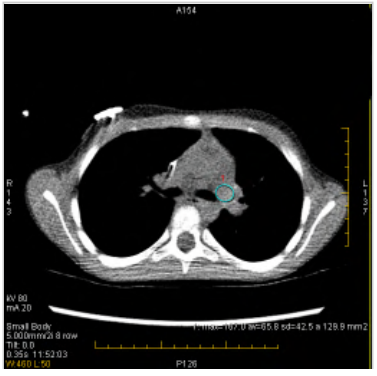
Chest only

- **Series 1** – PA & Lateral Scout: from base of neck through lung bases with inspiration

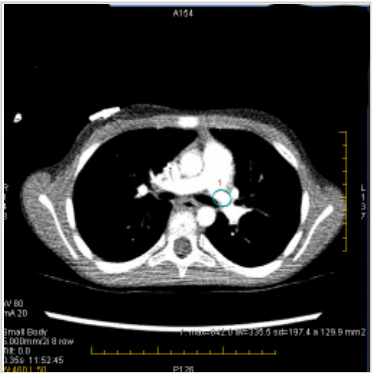
- **Series 2** - Helical: Scan from just above the lung apices and extend through lung bases with full inspiration.
- Smart prep: Place ROI on the pulmonary artery. Once it reaches the proper threshold, hit scan phase. The scan will then have a 12 second diagnostic delay built in. If enhancement threshold is not reach by 50 seconds, start the scan.



Scout



ROI Location



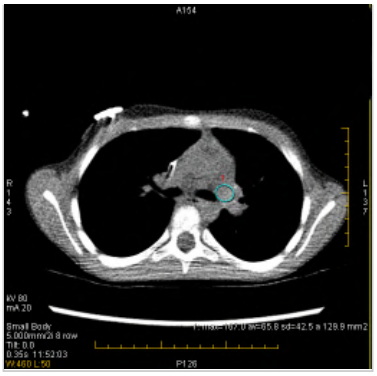
ROI Location

C/A/P

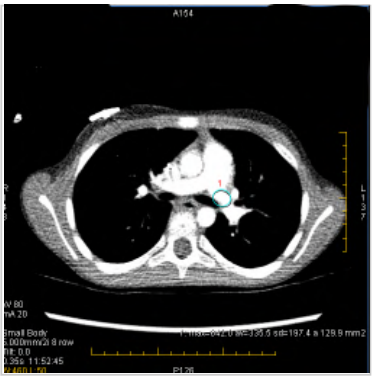
- **Series 1** – PA & Lateral Scout: from base of neck through pubic symphysis

- **Series 2** - Helical Phase: Scan Chest/ Abdomen/Pelvis in portal venous phase. Start scan just above the lung apices. For a Chest/Abdomen, end at the iliac crests and for a full CAP end at the pubic symphysis. **If the patient requires an adult medium or large protocol, please delete the abd/pel group and extend the chest through the pelvis, scan in one group, not two**. You may want to turn off your DMPR's and manually preform the reformats.
    - Smart prep: Center over the pulmonary artery. There is a built in diagnostic delay of 20 seconds after the smart prep enhancement threshold is reached.

Scout



ROI Location



ROI Location

Neck

- Series 1 – Scouts PA and Lateral: from the top of the orbit to the carina.
- Series 2 – Neck with Contrast: Begin Scanning **20 seconds** after the start of injection: Start the scan at the top of the orbit and scan to the carina. Remind the patient not to swallow during the scan.

Please remember to change the prep group delay in the neck protocol to 20 seconds

Reformat Instructions

Use DMPR on THIN ST.

Reformats

C/CAP

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
PEDS SA CHEST	THIN LUNG	Manual	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	THIN LUNG	Manual	Average	1500/-700	4	2	coronal
SA PEDS	Thin ST	DMPR	Average	450/50	4	2	sagittal
CO PEDS	Thin ST	DMPR	Average	450/50	4	2	coronal
AX MIPS	THIN ST	Manual	MIP	1500/-700	10	5	Axial

Neck

Name	Source Series Name	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	Thin ST	Manual	Average	400/60	3	1.5	Coronal
CO BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST	Manual	Average	400/60	3	1.5	Sagittal
SA BONE	Thin Bone	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

- All Images to PACS (ALI_Store).
- Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

None

Acquisition Parameters

Use routine (or high image quality if you desire) pediatric CAP protocol followed by the routine pediatric Neck Protocol.