School of Medicine
and Public Health
UNIVERSITY OF WISCONSIN-MADISON

CT Protocols for Revolution EVO 32ch with ASiR

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Manufactured in USA

University of Wisconsin-Madison CT Protocols for Revolution EVO 32ch with ASiR

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

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

Changes from Revision 4 to Revision 5

As part of our ongoing UW Madison CT protocol optimization, we have made the following changes between the Revision 4 and Revision 5 release. All of 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 5 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; and Discovery IQ PET/CT.

New Protocols Added

For the Revolution CT platform only, a Pediatric CINE Airway protocol was added. This CINE protocol has a scan duration long enough to capture both inspiration and expiration (i.e., free breathing), and it is used to answer important clinical questions without the need for respiratory gating and pediatric sedation. It also assesses the central airways, particularly for tracheobronchomalacia or excessive dynamic airway collapse.

In addition, for the Revolution CT platform only, a Congenital Heart Disease (CHD) protocol was added for pediatrics. The chest is prospectively gated and includes a contrast injection protocol that opacifies both sides of the heart. This exam is intended for pre-op planning for devices to reduce pulmonary vascular resistance.

Global Changes Made to the UW Protocols

The series descriptions for all protocols were standardized in Revision 4. If you still have not implemented this change, please see our website, (https://uwgect.wiscweb.wisc.edu/resources/) and click on the link titled "UW Vendor Neutral Series Naming/Description Manual".

TrueFidelity (DLIR) was added to the vast majority of protocols on the Revolution CT platform. Revolution CT does not allow you to prescribe Recon 1 with the DLIR option. It can only be used with a standard algorithm. For protocols using DLIR, we have ASiR-V on Recon 1 and DLIR on for subsequent recons. We advise setting DLIR to MEDIUM for all protocols, except thin neuro (2.0 mm and less) soft tissue recons should be set to HIGH.

On scanners that have the MARS option, an additional Standard recon with MARS turned on has been created. The protocols with these extra recons include: Stroke Deluxe; CTA Head Only; CTA Neck Only; Neck-Routine; Neck (Parathyroid Adenoma) Adult; Neck (Salivary Gland); Cervical, Thoracic and Lumbar Spines; Lower Extremity CTA; and all MSK protocols.

Abdominal Protocols

All slice thicknesses for routine soft tissue "thick" slices were changed from 5 x 3 mm to 3.75 x 2.5 mm. With this change, the reformats for "SA Body" and "CO Body" were also updated to 3 x 2 mm. Please remember to update your manual and DMPR reformats.

Please see the section of this manual titled "Trauma Chest and CAP T-Spine Workflow". A major change was made in this procedure—we no longer retro recon the Thoracic Spine from the Trauma Chest. The dose on the Trauma Chest was also changed.

There is a special workaround to implement a series split which applies to the Revolution CT protocol set only. For multiphasic scans that use a single series and multiple groups (e.g., biphasic liver, triphasic liver, liver donor, pancreas cancer, pancreas transplant, TIPS, HCC liver, and liver transplant work-up), a "dummy" recon 1 was created, which is present on the scanner but not meant to be sent to PACS. This allows you to send each phase/group of a single series to PACS separately.

When using the Mesenteric Ischemia protocols on the Revolution Frontier ES / Revolution Discovery CT / Revolution HD / Discovery CT / Discovery CT750 HD scanners, please confirm that your series Noise Index match the Noise Index given in this manual. These have been updated in the Revision 5 release.

The Adrenal Gland protocols were updated to use 120 kV for all phases and for all body sizes to facilitate CT number reliability. This indication relies on quantitative evaluation of the CT number.

Instructions were added to the R/O Hernia protocol for performing a limited hernia protocol. This is used for inguinal hernias. An image of the new scan range is included, which is meant to lower doses by using a smaller scan range.

Chest Protocols

All slice thicknesses for routine soft tissue "thick" slices were changed from 5 x 3 mm to 3.75 x 2.5 mm. The lung reformats (CO and SA) have also been updated to 2.5 x 1.25 mm for the DMPR and manual reformats.

Cardiovascular (CV) Protocols

For all CV protocols covering the chest, the lung reformats (CO and SA) were updated to 2.5 x 1.25 mm for the DMPR and manual reformats.

For the Revolution CT platform only, dynamic transition is turned on for the Non-Gated CTA Chest/Abdomen/Pelvis protocols. This will be consistent with the other Revolution CT non-gated CTA protocols.

In addition, for the Revolution CT platform only, the contrast volumes for the Prospectively-Gated Coronary CTA protocols were updated as follows: Patient weight <250 lbs. 60 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec; Patient weight 251-299 lbs. 80 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec; and Patient weight >300 lbs. 100 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec.

In the Non-Gated CTA (Chest/Abd/Pelvis) protocols, the smartprep enhancement threshold was changed from 80 HU to 100 HU.

The smart prep location was changed from the femoral arteries to the aorta just above the common iliac bifurcation in the Lower Extremity CTA protocols. New pictures have been included in the protocol.

The Prospectively-Gated Coronary CTA protocols are compatible with HeartFlow.

Musculoskeletal (MSK) Protocols

Instructions were added in the Wrist protocols for positioning, scanning and developing reformats for the limited "DRUJ instability wrist".

Neuroradiology (Neuro) Protocols

For all scanners with MARS, in the Cervical, Thoracic, and Lumbar spine protocols, the UW "with metal" protocols were moved to the miscellaneous section of the scanner. We advise using our "regular" without metal protocols with MARS for spines presenting with metal. Please turn on an additional soft tissue recon with MARS. We advise sending both the with and without MARS recons to PACS for interpretation.

For the Parathyroid Neck and C-Spine protocols, the smartprep mA was changed from 80 HU to 40 HU.

In the Adult Routine Neck protocols, the contrast dose was increased for patients over 220 lbs. Please see protocol for more details.

The contrast was changed in the Orbit and Temporal Bone protocols to 120 ml of Iohexol delivered at 3 ml/sec with a 30 ml of saline flush at 3 ml/s. The timing delay is now constant for all patients; i.e., no more smart prep. The delay is 60 seconds after start of injection for adults and 45 seconds for peds. Peds dosing is 1.5 ml/kg of Iohexol at 2 ml/s with a 10 ml saline flush at 2 ml/s. Please remove the smart prep, and change the scout and scan locations.

In the Stroke Deluxe, CTA Head, and CTA Neck protocols, a new thin (0.625 mm x 0.625 mm) soft tissue reconstruction was added to optimize the performance for the RAPID CTA module, as well as for physician interpretation of small vasculature. Please auto send this recon to RAPID.

Also in the CTA Neck protocols, the reformats were changed from 2 x 1 mm MIPS to 10 x 2.5 mm MIPS, and a 3.5 x 1.5 mm sagittal soft tissue reformat was added.

Pediatric Protocols

In the Triphasic Liver protocols, the smartprep enhancement threshold was changed from 50 HU to 80 HU.

The instructions in the Chest Pectus protocols were changed from “inspiration” to "suspension" (stop breathing).

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.

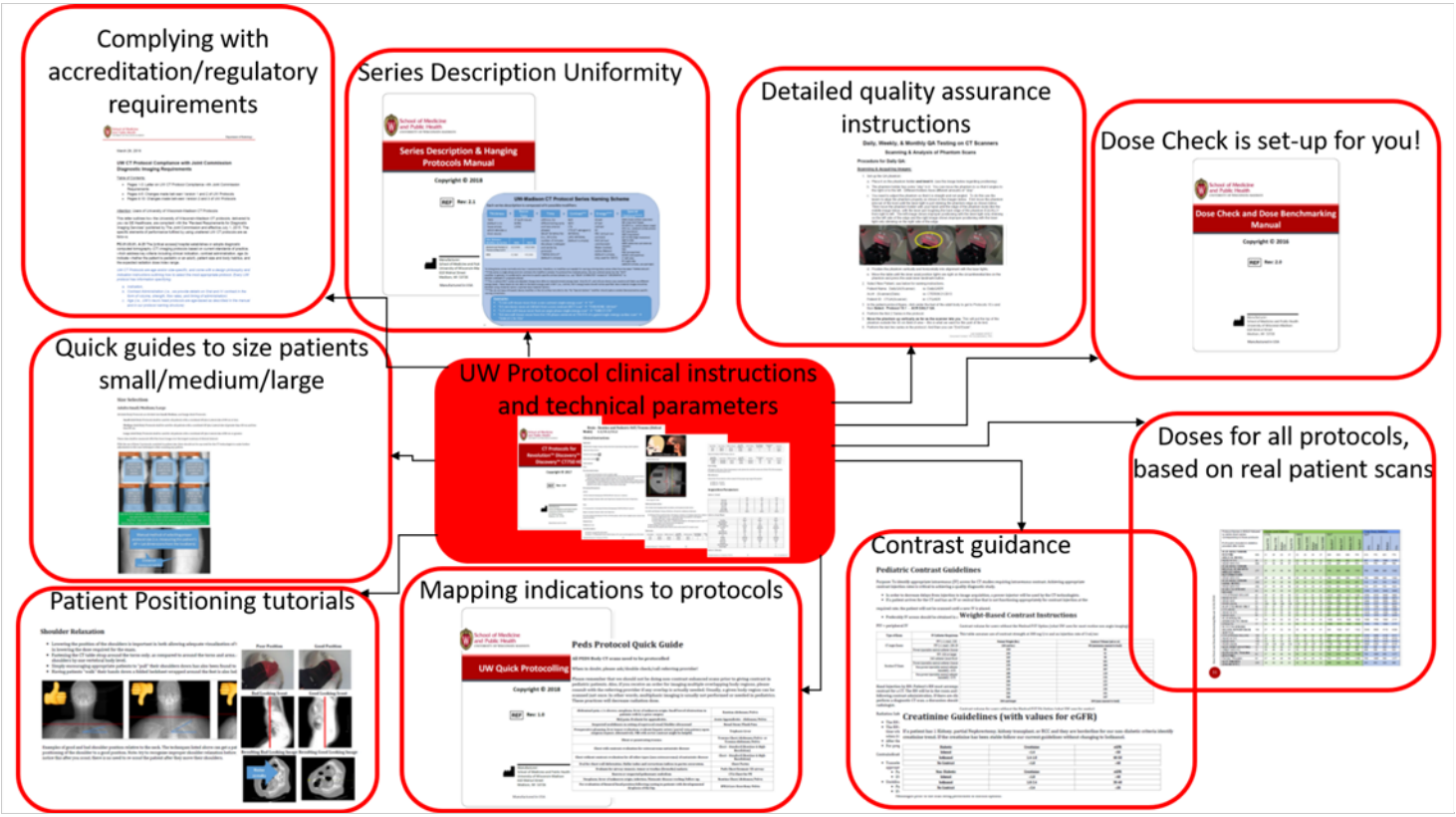
- Dose Check and Dose Benchmarking
  - We provide dose check values tuned to patient size and indication with instructions on how to enter them on your scanner (all UW protocol discs will come with these already pre-loaded for you).
  - We also incorporate dose data from thousands of UW patients scanned 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 EVO 32ch with ASiR

Introduction:

Listed below are the minimum scanner options required to use this set of protocols on your Revolution EVO 32ch with ASiR 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 keep a copy of any protocols you wish to use after loading the UW protocols, which can then be added to the UW protocol set under your "user" tab.

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.

Scanner Compatibility List:

ASiR

32 slice acquisition. User can select 20 mm detector coverage at 32 x 0.625 mm or 40 mm detector coverage at 32 x 1.25 mm.

Cardiac Options: SmartScore Pro, CardIQ SnapShot

Tube rotation times (helical mode): 0.5, 0.6, 0.7, 0.8, 0.9, and 1.0 second

100 kVA System (72 kW peak power):

- mA limits/kV for large focal spot (except pediatric body and pediatric head): 515 mA at 140 kV, 560 mA at 120 kV, 480 mA at 100 kV, and 400 mA at 80 kV
- mA limits/kV for small focal spot: 170 mA at 140 kV, 200 mA at 120 kV, 240 mA at 100 kV, and 300 mA at 80 kV
- mA limits/kV for pediatric head and pediatric body: 210 mA at 140 kV, 250 mA at 120 kV, 300 mA at 100 kV, and 375 mA at 80 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 - WW/WL 450/50 **CO BODY** **SA BODY**	**CHEST - WW/WL 450/50** ***(created off of a C/A/P study)*** **SA** **CO**	**CHEST - WW/WL 1500/-700 off bone+ images** **MIPS**
PEDS BODY - WW/WL 450/50 **CO PEDS** **SA PEDS**	**PEDS CHEST - WW/WL 450/50** **SA PEDS CHEST** **CO PEDS CHEST**	**PEDS CHEST - WW/WL 1500/-700** **PEDS CO CHEST** **PEDS SA CHEST**

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 2x1	2	1	800	200
MIPS 10x2	10	2.5	600	200
CO ST 3X1	3	1.5	450	50
CO BONE 3x1	3	1.5	2500	350
CO ST 2x1	2	1	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 slice thickness, interval, FOV 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 SAVE.

*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.

Size Selection

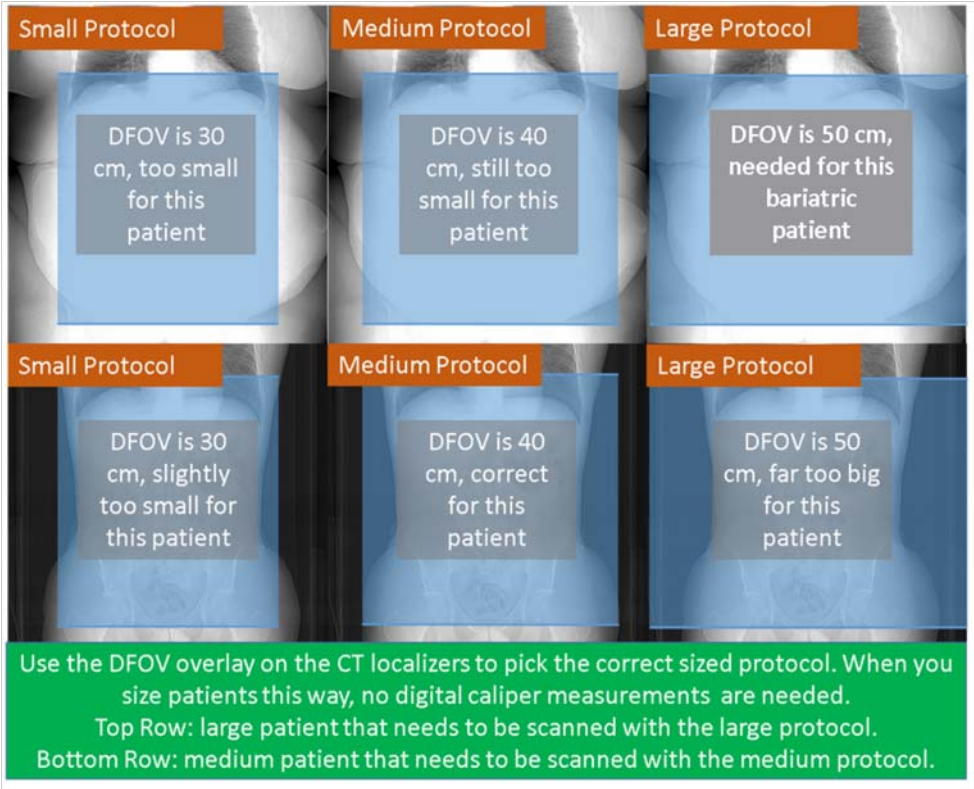
Adults:Small/Medium/Large

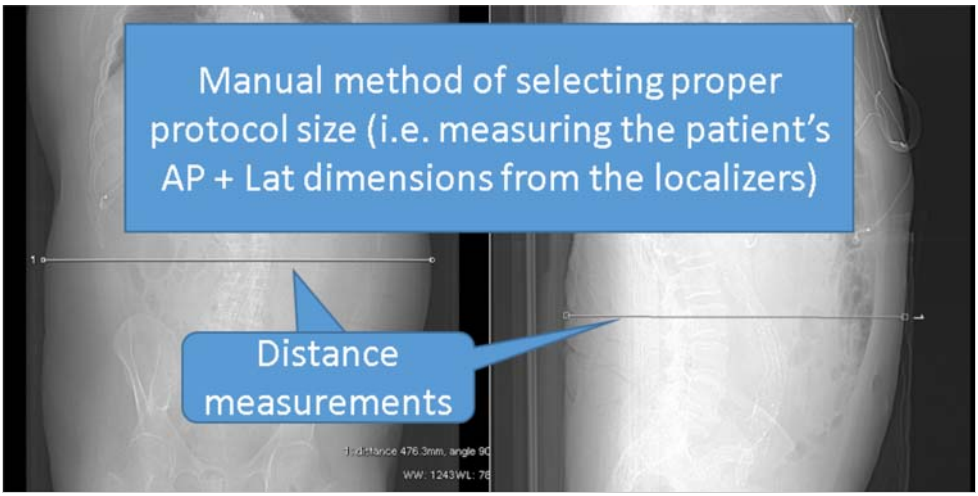
All Adult Body Protocols are divided into **Small**, **Medium**, and **Large** Adult Protocols.

> **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 44-55 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.

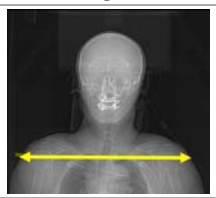
Neuro: Adult/Child/Infant

Some of the neuro protocols have scan parameters that are divided into three groups for: Adults, children (3-6 years old), and infants (0-3 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)

Setup

1. Patient Supine, AP and lateral scouts, no gantry tilt
2. 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).
3. Usually done in conjunction with a CT/CTA of the Head or CT/CTA of Head/Neck
4. Best to use 64 (4 cm detector coverage) slice scanners

Exam

CT Perfusion

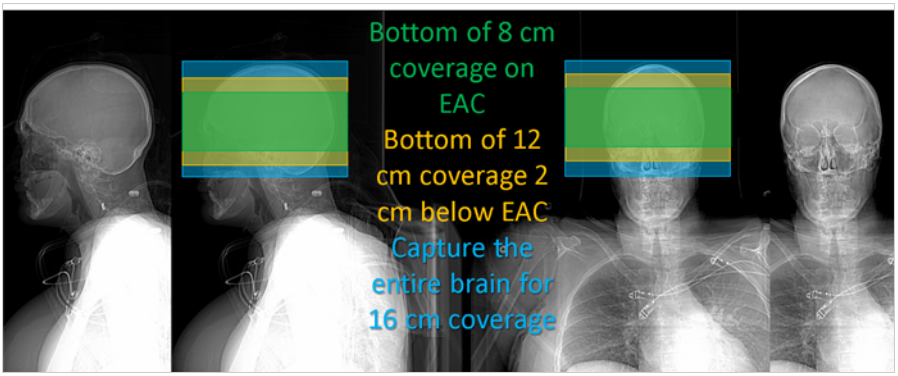
1. Scan Type Cine
2. Cine Duration 65 seconds
3. Perfusion Area (next page)
4. Contrast Adult: 40 ml of 370 Isovue (14.8 g Iodine) with 30 ml saline chase

Peds: 0.25 mg/kg Isovue 370 with 10 ml saline chase

1. Injection Rate Adult: 5 ml per sec

Peds: 3-4 ml per sec (Depends on size of needle and age of patient)

1. Prep Delay 5 seconds
2. Perfusion Slabs Use maximum number (4-8-16) of contiguous 5 mm slabs allowed by each specific CT scanner (use toggle/shuttle mode if possible)



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).

DFOV

1. Preferred 22 cm

Perfusion Post Processing

(see below for further details):

1. Prospectively reconstruct the images to 0.5 seconds. This is found under thick/speed - (under recon 2).
2. When you are in recon 2, enter the RAS coordinates manually.
3. Network raw perfusion images to ALI Store

Acquisition Parameters

Cine

30 passes for RevCT256

22 passes for non RevCT256

	Adult and Child non Revolution256	Adult and Child Revolution256
Scan Type	**Cine**	**Cine**
Rotation Time	**1.0**	**1.0**
Beam Collimation (mm)	**40**	**80**
Detector Rows	**64**	**128**
Detector Configuration	**64 x 0.625**	**128 x 0.625**
Scan FOV	**Head**	**Head**
Number of images per rotation	**8i**	**16i**
kV	**80**	**80**
Smart or Manual mA	**Manual mA**	**Manual mA**
Manual mA for Adults	**150**	**200**
Manual mA for Ped	**75**	**100**
Cine Duration (sec)	**65**	**65**
# of Passes	**22**	**30**
Slice Thickness (mm)	**5.0**	**5.0**
Interval (mm)	**0**	**0**

Note: Apply 30% ASiR/ASiR-V to the perfusion recons.

Shuttle

	Adult and Child
Scan Type	**Shuttle**
Rotation Time	**0.5**
Beam Collimation (mm)	**40**
Detector Rows	**64**
Detector Configuration	**64 x 0.625**
Scan FOV	**Head**
Number of images per rotation	**8i**
kV	**80**
Smart or Manual mA	**Manual mA**
Manual mA for Adults	**400**
Manual mA for Ped	**no shuttle scans for peds**
Cine Duration (sec)	**65**
# of Passes	**22**
Slice Thickness (mm)	**5.0**
Interval (mm)	**0**

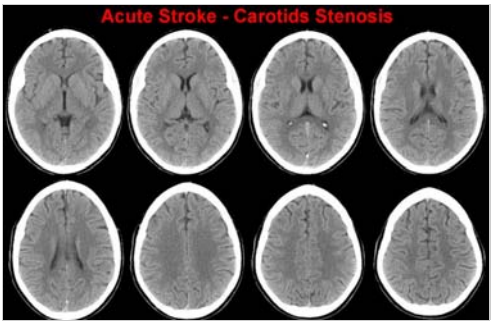
Note: Apply 30% ASiR/ASiR-V to the perfusion recons.

CT Perfusion Coverage

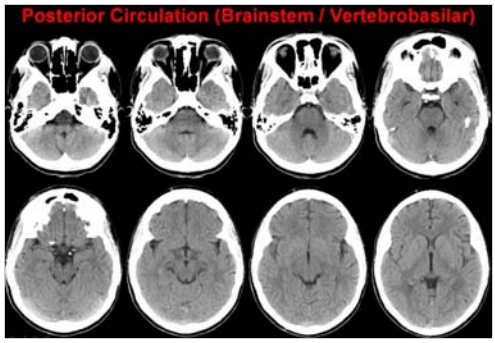
32 and higher slice scanners (shuttle mode)

Obtain 16 contiguous 5 mm slices from EAC Upward

32 and higher slice scanners (cine mode)

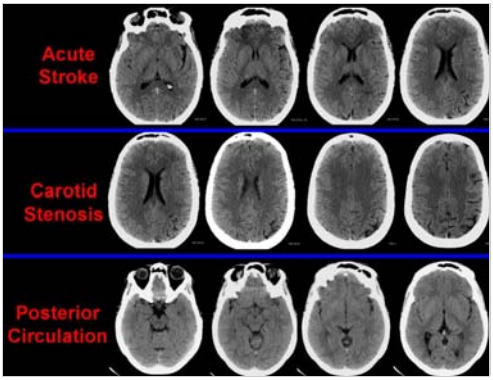


64 Channel CT Perfusion: Non-shuttle Mode (8x5 mm slice coverage)



64 Channel CT Perfusion: Non-shuttle Mode (8x5 mm slice coverage)

8-16 Slice scanners (cine mode)



8-16 Channel CT Perfusion: (4x5 mm slice coverage)

Abd/Pelvis 6.1/6.2/6.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 @ 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
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold 50 Hounsfield units. No more than 80 seconds delay.
  - 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.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.5	0.7	0.9
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-670)	(70-710)	(60-650)
Manual mA	420.0	360.0	370.0
Noise Index	23.0	26.5	33.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

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

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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)

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 @ 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
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold 50 Hounsfield units. No more than 80 seconds delay.
  - 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.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-770)**	**(70-700)**	**(50-630)**
Manual mA	**410.0**	**350.0**	**360.0**
Noise Index	**17.5**	**19.5**	**25.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

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.

Bariatric post-op patients:

Oral contrast is only given on the CT scan table.

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

Give a total of .75 dose = 100-150mL on the CT scan table.

There will be an order in EPIC to administer only 1 dose.

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 @ 3 mL/sec

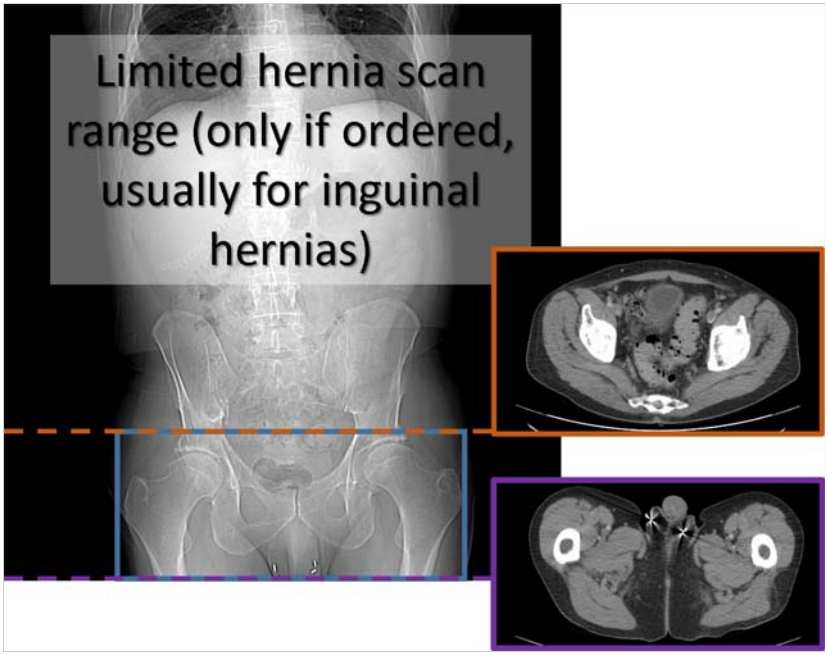
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

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 "breath 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

Abd/Pelvis - Flank Pain 6.10/6.11/6.12

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Patients with flank pain. R/O Renal Calculi.

Video for this protocol

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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All Images to (ALI_Store) PACS. 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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd/Pelvis - Pre-IVC Filter Removal 6.73/6.74/6.75

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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. 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 180 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

- All body images are networked to (ALI_Store) PACS, except the body thins send to (ALI_Source) Thin PACS.
- If a chest is included, please send all chest series to (ALI_Store) PACS 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**	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Low Dose Renal Stone (including limited follow-up) 6.13/6.14/6.15

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Follow-up for known urinary tract calculi.

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

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) 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

Low Dose Renal stone:

- 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.

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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All Images to (ALI_Store) PACS. 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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.4	0.4	0.5
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(50-410)	(60-620)	(50-580)
Manual mA	260.0	310.0	330.0
Noise Index	32.5	37.5	48.0
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd/Pelvis - Colonography 6.16/6.17/6.18

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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**

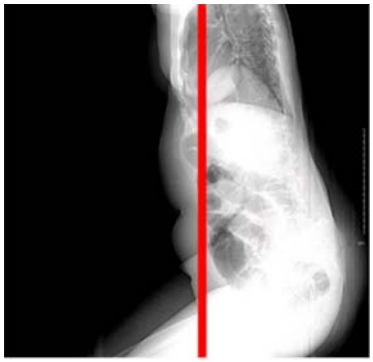
Just as patient positioning is critical in our routine supine and prone exams, it is also critical in the decubitus portion of our virtual colonoscopy screening exam. To provide the best image quality at the lowest dose, proper patient centering in the scanner gantry is critically important.
You cannot 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 scanner 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

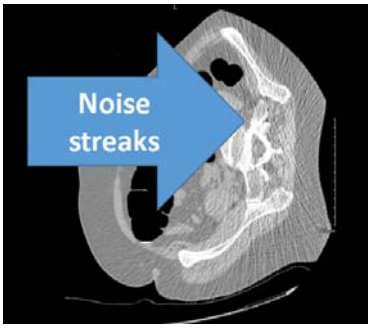
Bad Looking Scout

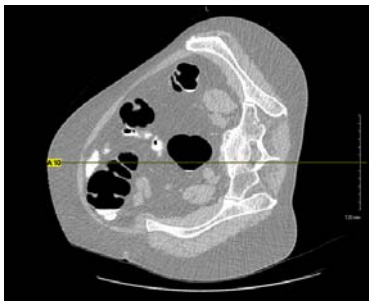
Good Position

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.

- 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

The 5mm images (Recon 2) and scouts are networked to (ALI_Store) PACS - network the 1.25mm images from series 2 & 4 (& 5) to these 3 places V3D3_Primary, V3D_Backup, and (ALI_Source) Thin PACS. The Bone Density Recon 3 is sent to QCT-HIP. Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-420)**	**(30-420)**	**(30-420)**
Manual mA	**150**	**150**	**150**
Noise Index	**25.0**	**25.0**	**25.0**
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	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-420)**	**(30-420)**	**(30-420)**
Manual mA	**150**	**150**	**150**
Noise Index	**60.0**	**60.0**	**60.0**
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-420)**	**(30-420)**	**(30-420)**
Manual mA	**150**	**150**	**150**
Noise Index	**60.0**	**60.0**	**60.0**
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**

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

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Evaluate for adenopathy, abscess, and neoplasm.

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.

Bariatric post-op patients:

Oral contrast is only given on the CT scan table.

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

Give a total of .75 dose = 100-150mL on the CT scan table.

There will be an order in EPIC to administer only 1 dose.

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 @ 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: - Performed in 2 groups. Scan using 1 breath hold for each group (allow the patient to breath between the chest and abd/pelvis groups).
    - Smart Prep- Monitor Phase: Center over pulmonary artery, threshold 100 HU. No greater than a 50 second delay.
    - 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 or for Abdomen/Pelvis end at pubic symphysis

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual		Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN Bone	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	sagittal
CO	THIN Bone	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 BODY	THIN ST	DMPR (Abd/Pelvis)		Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR (Abd/Pelvis)		Average	450/50	3	2	coronal

Networking

All images (including thins) sent to (ALI_Store) PACS. 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)	50	50	50
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-630)**	**(40-630)**	**(35-630)**
Manual mA	**390.0**	**310.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**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	**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 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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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/Abd/Pelvis without IV Contrast 5.7/5.8/5.9

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Evaluate for adenopathy, abscess, and neoplasm.

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.

Bariatric post-op patients:

Oral contrast is only given on the CT scan table.

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

Give a total of .75 dose = 100-150mL on the CT scan table.

There will be an order in EPIC to administer only 1 dose.

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 – Scan using 1 breath hold for each group (allow the patient to breath between the chest and abd/pelvis groups). Performed in 2 groups with minimal delay between the groups.
    - 1st group – Chest - Inspiration: Start just above the lung apices and extend through the lung bases.
    - 2nd group – Abd/Pel: Overlap 1st group 2 cm and end at the iliac crests or pubic symphysis (if pelvis is ordered).

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual		Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN Bone	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	sagittal
CO	THIN Bone	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 BODY	THIN ST	DMPR (Abd/Pelvis)		Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR (Abd/Pelvis)		Average	450/50	3	2	coronal

Networking

All images (including thins) sent to (ALI_Store) PACS. 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	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	1.375	1.375	1.375
Speed (mm/rot)	55.00	55.00	55.00
Rotation Time (s)	0.4	0.6	0.7
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(50-630)	(40-630)	(35-630)
Manual mA	390.0	310.0	360.0
Noise Index	28.5	32.5	41.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**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	**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 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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd/Pelvis - Urography 6.22/6.23/6.24

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

General renal imaging, hematuria work-up.

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).

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

Injection 1:

- 50 mL Iohexol (Omnipaque) 300 MG/ML injection @ 1.5 mL/sec

Injection 2:

- 100 mL Iohexol (Omnipaque) 300 MG/ML injection @ 3 mL/sec
- 50 mL Sodium Chloride 0.9% @ 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO BODY	THIN ST	DMPR	Average	450/50	3	2	Coronal

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

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images including the Without Thins are networked to (ALI_Store) PACS, except the Parenchymal thins send to (ALI_Source) Thin PACS. 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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.4	0.5	0.6
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-610)	(70-740)	(60-710)
Manual mA	380.0	370.0	410.0
Noise Index	27.0	30.5	39.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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, 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-660)**	**(60-660)**
Manual mA	**410.0**	**330.0**	**380.0**
Noise Index	**19.0**	**22.0**	**28.0**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Urothelial Tumor Follow-up 6.70/6.71/6.72

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

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

If they have metastatic disease, routine CT A/P will suffice.

Oral Contrast

Give a total 800 mL of water prior to scan (A 200mL dose every 20 minutes over an hour).

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 @ 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, 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.5	0.7	0.9
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-670)	(70-710)	(60-650)
Manual mA	420.0	360.0	370.0
Noise Index	23.0	26.5	33.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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, 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-660)**	**(60-660)**
Manual mA	**410.0**	**330.0**	**380.0**
Noise Index	**19.0**	**22.0**	**28.0**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-660)**	**(60-660)**
Manual mA	**410.0**	**330.0**	**380.0**
Noise Index	**19.0**	**22.0**	**28.0**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd-Liver - Biphasic 6.25/6.26/6.27

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

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

Videos for this protocol

Liver Scanning:

Biphasic Liver 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.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol;

Iohexol (Omnipaque) 300 MG/ML injection @ 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.
  - Smart Prep - Monitor Phase: On the aorta at the level of mid liver, dynamic transition is turned on. There will be a 15 second diagnostic delay built in.
  - 1st group - Start scan at the top of the liver and end at the bottom of the liver.
  - 2nd group - 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.

Reformat Instructions

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

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

- All body images are networked to (ALI_Store) PACS, except the body thins send to (ALI_Source) Thin PACS.
- If a chest is included, please send all chest series to (ALI_Store) PACS 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	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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.8**	**0.9**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-600)**	**(70-690)**	**(60-750)**
Manual mA	**380.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**22.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd-Liver - Triphasic 6.28/6.29/6.30

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Work-up of a potential liver transplant recipient.

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.

Pre-Scan Instructions

None

IV Contrast Parameters

150 mL Iopamidol (Isovue 370) 76% injection @ 5mL/sec

70 mL Sodium Chloride 0.9%

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)
  - Smart Prep - Monitor Phase on the aorta at the level of mid liver. Dynamic transition is turned on. Delays are pre-programmed for the following two groups.
  - 1st group - Arterial phase: Start at the top of the liver and end at the bottom of the liver or proximal SMA which ever is lower.
  - 2nd group - Late arterial phase: Start at the bottom of the liver (same coordinates and table positions) and end at the top.
  - 3rd group – Portal phase: 70 seconds after the start of the injection, scan from the top of the liver and end at the iliac crests for the Abdomen or at pubic symphysis for the Abdomen/Pelvis

- 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

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

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins send to (ALI_Source) Thin PACS 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	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	1.375	1.375	1.375
Speed (mm/rot)	55.00	55.00	55.00
Rotation Time (s)	0.4	0.4	0.4
kV	120	120	120
AEC type	smart mA	smart mA	smart mA
mA Range	(30-420)	(30-420)	(30-420)
Manual mA	150	150	150
Noise Index	25.0	25.0	25.0
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	40	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	40% / 20% / Medium	40% / 20% / Medium	40% / 20% / Medium
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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.7**	**0.8**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(80-760)**	**(60-730)**
Manual mA	**420.0**	**380.0**	**420.0**
Noise Index	**15.5**	**17.0**	**20.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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**

Series 3, 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.6**	**0.7**	**0.7**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-590)**	**(70-650)**	**(60-710)**
Manual mA	**370.0**	**330.0**	**400.0**
Noise Index	**19.5**	**21.5**	**26.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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, 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.6**	**0.7**	**0.7**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-590)**	**(70-650)**	**(60-710)**
Manual mA	**370.0**	**330.0**	**400.0**
Noise Index	**19.5**	**21.5**	**26.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

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

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 prior to scan (A 200mL dose every 20 minutes over an hour).

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 @ 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.
  - Smart Prep- Monitor Phase: On the aorta at the level of mid liver, dynamic transition is turned on. There will be a 15 second diagnostic delay built in.
  - 1st group - Start scan at the top of the liver and end at the bottom of the liver.
  - 2nd group - Pause 70 seconds from the start of the injection. Start scan at the top of the diaphragm, for Abdomen only end at the iliac crest or for Abdomen/Pelvis end at pubic symphysis.
- Series 3 - Delay: 3 Min Delay
  - Start at top of diaphragm and end at bottom of the liver.

- **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.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

- All body images are networked to (ALI_Store) PACS, except the body thins send to (ALI_Source) Thin PACS.
- If a chest is included, please send all chest series to (ALI_Store) PACS 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**	**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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.8**	**0.9**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-600)**	**(70-690)**	**(60-750)**
Manual mA	**380.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**22.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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, 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.8**	**0.9**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-600)**	**(70-690)**	**(60-750)**
Manual mA	**380.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**22.5**
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	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.5**	**2.5**	**2.5**

Abd-Adrenal Gland - Adenoma 6.31/6.32/6.33

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 @ 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
  - Smart Prep - Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold 50 Hounsfield units. No more than 80 seconds delay.
  - Helical Scan-Scan Phase- With IV Contrast: Start scan at the top of the diaphragm, for Abdomen only end at the iliac crest or for Abdomen/Pelvis end at pubic symphysis.
- Series 4 - Delayed Scan: Wait 15 minutes and then scan through the adrenal glands only.
- Check before continuing with the exam and giving contrast

Reformat Instructions

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

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-530)**	**(70-660)**	**(70-760)**
Manual mA	**330.0**	**330.0**	**430.0**
Noise Index	**16.0**	**22.0**	**32.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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, 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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.4**	**0.7**	**0.9**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-750)**
Manual mA	**420.0**	**360.0**	**430.0**
Noise Index	**19.0**	**26.5**	**39.0**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.4**	**0.7**	**0.9**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-750)**
Manual mA	**420.0**	**360.0**	**430.0**
Noise Index	**19.0**	**26.5**	**39.0**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 prior to scan (A 200mL dose every 20 minutes over an hour).

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 @ 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.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

- All body images are networked to (ALI_Store) PACS, except the body thins send to (ALI_Source) Thin PACS.
- If a chest is included, please send all chest series to (ALI_Store) PACS 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	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	0.531	0.531	0.531
Speed (mm/rot)	21.20	21.20	21.20
Rotation Time (s)	0.5	0.7	0.9
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-770)	(70-700)	(50-630)
Manual mA	410.0	350.0	360.0
Noise Index	17.5	19.5	25.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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**

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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-660)**	**(60-660)**
Manual mA	**410.0**	**330.0**	**380.0**
Noise Index	**19.0**	**22.0**	**28.0**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd/Pelvis - Kidney Tumor 6.49/6.50/6.51

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Suspicion or evaluation of small renal neoplasm

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.

Pre-Scan Instructions

None

IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 MG/ML injection @ 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
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI (3) in the liver. Threshold of 70 Hounsfield units. No more than 80 seconds delay.
  - Helical Scan-Scan Phase- 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
- Series 4 - 2 minute delayed sequence through kidneys only

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

- All body images are networked to (ALI_Store) PACS, except the body thins send to (ALI_Source) Thin PACS.
- If a chest is included, please send all chest series to (ALI_Store) PACS 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**	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.4**	**0.4**	**0.5**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-470)**	**(70-700)**	**(60-660)**
Manual mA	**290.0**	**350.0**	**380.0**
Noise Index	**30.5**	**35.0**	**45.0**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-660)**	**(60-660)**
Manual mA	**410.0**	**330.0**	**380.0**
Noise Index	**19.0**	**22.0**	**28.0**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Work-up of a potential renal donor.

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).

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 (Isovue 370) 76% injection

90 mL Sodium Chloride 0.9%

Scan without series start Injection Part 1, wait 5 minutes and then use renal donor part 2 and Series 3 at same time.

Injection Part 1:

- 20 mL Iopamidol (Isovue 370) 76% injection
- 20 mL Sodium Chloride 0.9% test injection

Injection Part 2: Multi-phase inject

- 30 mL Iopamidol (Isovue 370) 76% injection @ 3 mL/sec
- 30 mL Sodium Chloride 0.9% @ 3 mL/sec
- Pause 20 sec
- 100 mL Iopamidol (Isovue 370) 76% @ 5 mL/sec
- 50 mL Sodium Chloride 0.9% @ 5 mL/sec

Field of View

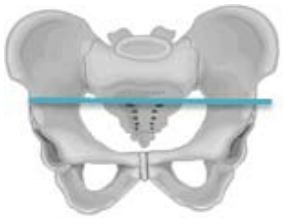
Same as previous study or as small as appropriate

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.



Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

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

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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.4**	**0.4**	**0.5**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(60-470)**	**(70-700)**	**(60-660)**
Manual mA	**290.0**	**350.0**	**380.0**
Noise Index	**30.5**	**35.0**	**45.0**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.7**	**0.8**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(80-760)**	**(60-730)**
Manual mA	**420.0**	**380.0**	**420.0**
Noise Index	**22.0**	**23.5**	**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	**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 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.8**	**0.9**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-600)**	**(70-690)**	**(60-750)**
Manual mA	**380.0**	**350.0**	**430.0**
Noise Index	**17.0**	**18.5**	**22.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Abd-Small Bowel - Enterography 6.55/6.56/6.57

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Evaluate for small bowel disease.

Video for this protocol

Oral Contrast

Give a total dose of = 1350mL of Volumen.

Give the entire amount over an hour (the first 2/3 of the bottle drank in the first 30 minutes and the last 1/3 of the bottle in the second 30 minutes.

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

Pre-Scan Instructions

None

IV Contrast Parameters

5 mL Medrad™ Protocol

150 mL Iopamidol (Isovue 370) 76% injection.

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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

- All body images are networked to (ALI_Store) PACS, except the body thins send to (ALI_Source) Thin PACS.
- If a chest is included, please send all chest series to (ALI_Store) PACS 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**	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-660)**	**(70-660)**	**(60-660)**
Manual mA	**410.0**	**330.0**	**380.0**
Noise Index	**19.0**	**22.0**	**28.0**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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**

CTA Abd - Obscure GI Bleed 6.58/6.59/6.60

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Evaluate for cause of obscure gastrointestinal bleed.

Video for this protocol

Oral Contrast

Give a total dose of = 1350mL of Volumen.

Give the entire amount over an hour (the first 2/3 of the bottle drank in the first 30 minutes and the last 1/3 of the bottle in the second 30 minutes.

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:

- 30 mL Iopamidol (Isovue 370) 76% @ 3 mL/sec
- 30 mL Sodium Chloride 0.9% @ 3 mL/sec
- Pause 10 seconds
- 100 mL Iopamidol (Isovue 370) 76% @ 5 mL/sec
- 50 mL Sodium Chloride 0.9% @ 5 mL/sec

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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	Vascular phase THIN ST	DMPR	Average	450/50	3	2	Sagittal
CO BODY	Vascular phase THIN ST	DMPR	Average	450/50	3	2	Coronal
SA BODY	Vascular phase THIN ST	Manual	MIP	450/50	10	5	Sagittal
SA BODY	Delayed phase THIN ST	DMPR	Average	450/50	3	2	Sagittal
CO BODY	Delayed phase THIN ST	DMPR	Average	450/50	3	2	Coronal

Networking

All images are networked to (ALI_Store) PACS (including the arterial phase for the mesenteric), except the thins send to (ALI_Source) Thin PACS and 3D Lab. Unless there is a chest then all images networked to (ALI_Store) PACS. 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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.4	0.4	0.5
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(60-470)	(70-700)	(60-660)
Manual mA	290.0	350.0	380.0
Noise Index	30.5	35.0	45.0
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.7**	**0.8**	**0.9**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(80-760)**	**(60-730)**
Manual mA	**420.0**	**380.0**	**420.0**
Noise Index	**12.5**	**13.5**	**17.0**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.6**	**0.7**	**0.7**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-590)**	**(70-650)**	**(60-710)**
Manual mA	**370.0**	**330.0**	**400.0**
Noise Index	**19.5**	**21.5**	**26.5**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

CTA Abd - Mesenteric Ischemia 6.61/6.62/6.63

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 (Isovue 370) 76% 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
  - Group 1
    - Smart prep-Monitor Phase: at the level of the celiac on the aorta, dynamic transition is turned on.
    - Helical Scan- Scan Phase- Arterial phase: Start above the celiac artery and end at the level of the femoral heads.
  - Group 2
    - Helical Scan: 70 seconds after injection, start at the diaphragm and end at the pubic symphysis.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS (including the arterial phase for the mesenteric), except the thins send to (ALI_Source) Thin PACS and 3D Lab. Unless there is a chest then all images networked to (ALI_Store) PACS. 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	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	0.531	0.531	0.531
Speed (mm/rot)	21.20	21.20	21.20
Rotation Time (s)	0.7	0.8	0.9
kV	80	100	120
AEC type	smart mA	smart mA	smart mA
mA Range	(80-670)	(80-760)	(60-730)
Manual mA	420.0	380.0	420.0
Noise Index	22.0	23.5	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	**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, 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.6**	**0.7**	**0.7**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-590)**	**(70-650)**	**(60-710)**
Manual mA	**370.0**	**330.0**	**400.0**
Noise Index	**19.5**	**21.5**	**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	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Trauma - Chest 5.22/5.23/5.24

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 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
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI in the aorta, dynamic transition is turned on.
  - Helical Scan- Scan Phase- With IV Contrast: 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.

Reformat Instructions

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

Reformats

Name	Source Recon	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 BONE	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	THIN BONE	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

All Images to (ALI_Store) PACS. 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)	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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-630)**	**(40-630)**	**(35-630)**
Manual mA	**390.0**	**310.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**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**
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 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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 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)
  - Smart Prep- Monitor Phase: Center over the liver. Put ROI in the aorta, dynamic transition is turned on.
  - 1st group, start 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
- 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:

- To save radiation we Retro L-spines off of our abdomen/pelvis scans for all Trauma patients, this in turn saves us

time scanning and radiation to the patients. If a T-Spine is ordered, you will need to perform an extra T-Spine scan.

- The recons that are turned on in a Trauma Protocol are specific to that protocol that you picked (ie: Trauma Abd/Pelvis or Trauma Chest/Abd/Pelvis). These will be either the first two or first three recons in the scan. The recons following those will be turned off but will be set for the correct Scan Factors for a Lumbar spine. You can turn these on if you have an order to recon the L-spine for the patient. REMEMBER: Once you turn these recons on you must put them in the correct FOV, pick your start and end location, R/L centering, and A/P centering.
- The Lumbar spines must all be in separate recons to be able to split them once your exam is done. When you turn on the recons only turn on the group 2 recons (the abdomen/pelvis) for the Lumbar spine.
- If combined with a lower extremity run-off, the reformats for the run-off will be handled by the 3D lab.

Reformats

Name	Source Recon	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	BONE	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	BONE	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.
SA BODY	Body THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	Body THIN ST	DMPR	Average	450/50	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 Recon	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

All Images to (ALI_Store) PACS. 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)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-630)**	**(40-630)**	**(35-630)**
Manual mA	**390.0**	**310.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 20% / Medium**
Slice Thickness (mm)	**3.75**	**3.75**	**3.75**
Interval (mm)	**2.25**	**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**
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 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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-650)**	**(70-700)**	**(60-710)**
Manual mA	**410.0**	**350.0**	**410.0**
Noise Index	**17.5**	**19.5**	**25.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 4 (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**
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	**18**	**18**	**18**
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	**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**
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

	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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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**
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**

Trauma - Abd/Pelvis 6.4/6.5/6.6

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 @ 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
  - Smart Prep- Monitor Phase: Center over the liver. Put the ROI in the liver. Threshold 50 Hounsfield units. No greater than 80 second delay.
  - Helical Scan-Scan Phase: Start scan at the top of the diaphragm and end below the pubic symphysis.
- Series 3 - Delayed (Optional per MD) 7 minute delayed scans from the top of the kidneys through the bladder

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Reformats for the spine:

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
CO ST	THIN ST	Manual	Average	450/60	2	1	Coronal
CO BONE	THIN Bone	Manual	Average	3000/300	2	1	Coronal
SA ST	THIN ST	Manual	Average	450/60	2	1	Sagittal
SA BONE	THIN BONE	Manual	Average	3000/300	2	1	Sagittal

Reformat Instructions

Extra Recons on Trauma Protocols:

- To save radiation we Retro spines off of our body scans for all Trauma patients, this in turn saves us time scanning and radiation to the patients.
- The recons that are turned on in a Trauma Protocol are specific to that protocol that you picked (ie: Trauma Abd/Pelvis or Trauma Chest/Abd/Pelvis). These will be either the first two or first three recons in the scan. The recons following those will be turned off but will be set for the correct Scan Factors for a Thoracic and Lumbar spine. You can turn these on if you have an order to recon the spines for the patient. REMEMBER: Once you turn these recons on you must put them in the correct FOV, pick your start and end location, R/L centering, and A/P centering.
- The Thoracic and Lumbar spines must all be in separate recons to be able to split them once your exam is done. When you turn on the recons only turn on the top part (the chest) for the Thoracic spine and the bottom part (the abdomen) for the Lumbar spine.

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-650)**	**(70-700)**	**(60-710)**
Manual mA	**410.0**	**350.0**	**410.0**
Noise Index	**17.5**	**19.5**	**25.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 3 (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**
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	**18**	**18**	**18**
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	**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**
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

	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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Cystogram 8.10/8.11/8.12

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.5	0.7	0.9
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-670)	(70-710)	(60-650)
Manual mA	420.0	360.0	370.0
Noise Index	23.0	26.5	33.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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, 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	**0.969**	**0.969**	**0.969**
Speed (mm/rot)	**38.80**	**38.80**	**38.80**
Rotation Time (s)	**0.5**	**0.7**	**0.9**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-670)**	**(70-710)**	**(60-650)**
Manual mA	**420.0**	**360.0**	**370.0**
Noise Index	**23.0**	**26.5**	**33.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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**

Body Pelvis 8.16/8.17/8.18

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.

Bariatric post-op patients:

Oral contrast is only given on the CT scan table.

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

Give a total of .75 dose = 100-150mL on the CT scan table.

There will be an order in EPIC to administer only 1 dose.

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 @ 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

Networking

All images are networked to (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	0.969	0.969	0.969
Speed (mm/rot)	38.80	38.80	38.80
Rotation Time (s)	0.5	0.7	0.9
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(80-670)	(70-710)	(60-650)
Manual mA	420.0	360.0	370.0
Noise Index	23.0	26.5	33.5
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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	**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 & High-Resolution) 5.1/5.2/5.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

75 mL Iohexol (Omnipaque) 300 mg/mL @ 3 mL/sec

30 mL Sodium Chloride 0.9% @ 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
  - 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).
  - 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.
- 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

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

Reformats

Name	Source Recon	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	Bone	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-630)**	**(40-630)**	**(35-630)**
Manual mA	**390.0**	**310.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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% / 10% / Medium**	**30% / 10% / 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**

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)	**0.4**	**0.4**	**0.5**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-460)**	**(45-680)**	**(35-640)**
Manual mA	**280.0**	**340.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
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)	**0.4**	**0.4**	**0.5**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-460)**	**(45-680)**	**(35-640)**
Manual mA	**280.0**	**340.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

75 mL Iohexol (Omnipaque) 300 mg/mL @ 3 mL/sec

30 mL Sodium Chloride 0.9% @ 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
  - Smart Prep-Monitor Phase (if giving IV contrast): Center over the pulmonary artery, threshold 100 H.U. No greater than a 50 second delay.
  - 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.

Reformat Instructions

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

Reformats

Name	Source Recon	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	Bone	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(20-240)**	**(20-350)**	**(20-410)**
Manual mA	**150.0**	**180.0**	**240.0**
Noise Index	**46.0**	**53.0**	**67.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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% / 10% / Medium**	**30% / 10% / 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 - CTA for PE 5.16/5.17/5.18

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Evaluate for known or suspected pulmonary embolism.

Video for this protocol

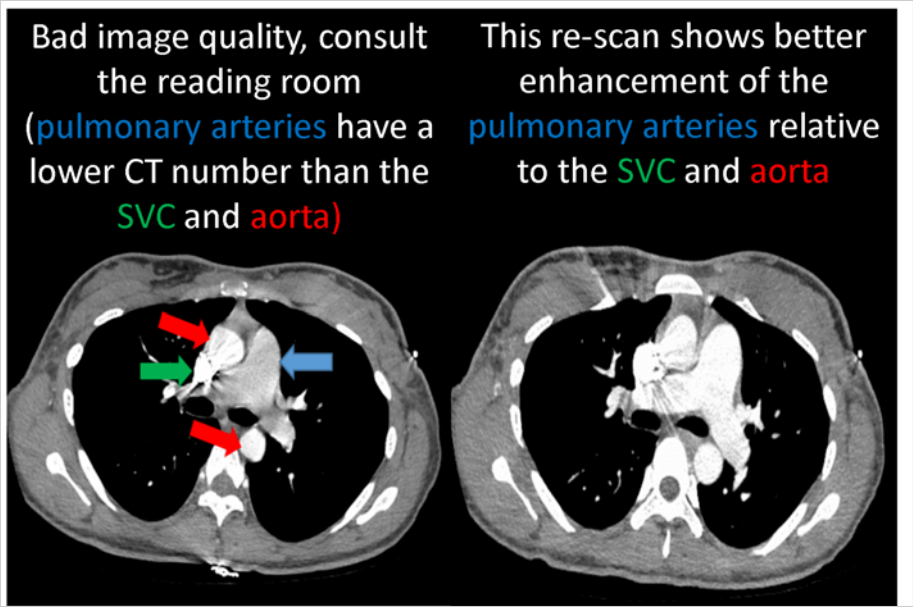
Oral Contrast

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.

IV Contrast Parameters

Patient weight < 140 kilos.(Less than 300 lbs.)

- 100 mL Iohexol (Omnipaque) 300 MG/ML @ 5 mL/sec
- 10 mL Sodium Chloride 0.9% @ 5 mL/sec

Patient weight 140-160 kilos.(300-350 lbs.)

- 100 mL Iopamidol (Isovue 370) 76% @ 5 mL/sec
- 10 mL Sodium Chloride 0.9% @ 5 mL/sec

Patient weight > 160 kilos.(More than 350 lbs.)

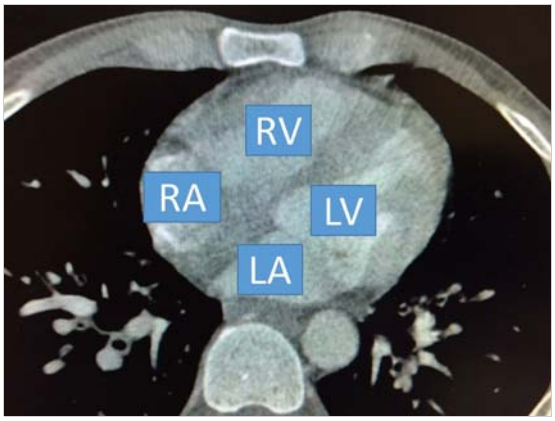
- 150 mL Iopamidol (Isovue 370) 76% @ 5 mL/sec
- 10 mL Sodium Chloride 0.9% @ 5 mL/sec

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
  - 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.
  - Scan Phase: from lower neck to diaphragm with IV Contrast. Inspiratory breathing instructions are on, remind the patient not to bear down or strain.



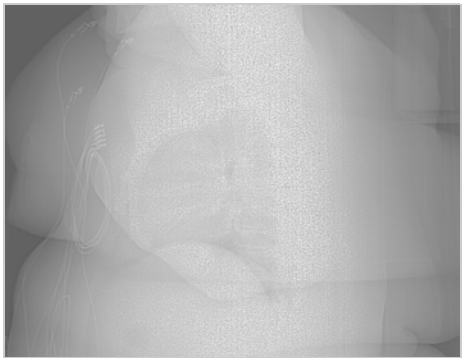
Smart Prep location should be the LA

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.

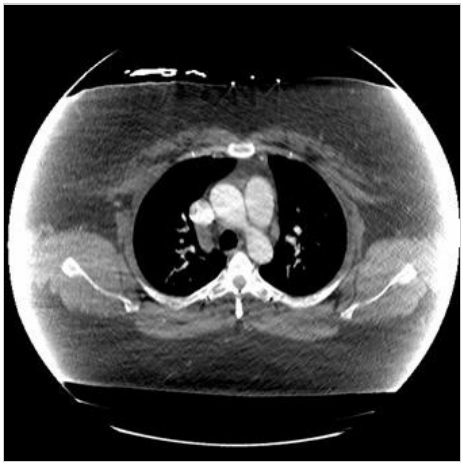
Note: If you know the patient is likely to max out the mA table before taking the scout, you should increase the scout kV from 120 to 140.

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

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

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	80	100	120
Scout 1 mA	10	10	20
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.5**	**0.5**	**0.7**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-675)**	**(45-700)**	**(45-720)**
Manual mA	**330.0**	**350.0**	**440.0**
Noise Index	**37.5**	**46.0**	**50.0**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

100 mL Iohexol (Omnipaque) 300 MG/ML @ 4 mL/sec

30 mL Sodium Chloride 0.9% @ 4 mL/sec

(Only if requested by radiologist for known or suspected central airway tumor)

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

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

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.
- 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

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.6**	**0.7**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-630)**	**(40-630)**	**(35-630)**
Manual mA	**390.0**	**310.0**	**360.0**
Noise Index	**28.5**	**32.5**	**41.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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% / 10% / Medium**	**30% / 10% / 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**

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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(20-240)**	**(20-350)**	**(20-410)**
Manual mA	**150.0**	**180.0**	**240.0**
Noise Index	**46.0**	**53.0**	**67.5**
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			
ASiR/ASiR256/DLIR	**40% / 20% / Medium**	**40% / 20% / Medium**	**40% / 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% / 10% / Medium**	**30% / 10% / 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**

Non-Gated CTA (Chest/Abd/Pelvis) 5.28/5.29/5.30

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 an endoleak on an endostents

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

Practice breathing instructions. Ask patient to cough just prior to the scan. Due to longer scan times patient may need to start breathing after scanning through the Lung is completed

IV Contrast Parameters

18G IV started in right arm. Please call radiologist if unable to obtain IV in right arm.

Use the Medrad™ P3T PA protocol. (load Isovue 370)

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

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
  - During inspiration breath-hold.
  - Coverage:
    - Chest: Lower neck to mid-abdomen
    - Abd/Pelvis: Diaphragm to upper thighs
- Series 2 - Non-contrast (only when ordered)
  - During inspiration breath-hold
  - Coverage:
    - Chest: Lung apex to below the sma
    - Abdomen: Diaphragm to iliac crests
    - Pelvis: Iliac crests to lesser trochanters
- Series 3 - CTA
  - Use smartprep with 6s diagnostic delay
    - 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**
    - If chest is not included: Smartprep on mid abdominal aorta
  - During inspiration breath-hold
  - Coverage: Same as non-contrast scan
- 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
  - During inspiration breath-hold
  - 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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA BODY	THIN ST	DMPR	Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR	Average	450/50	3	2	coronal

For the CAP, also do these for the lung field

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

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	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	1.375	1.375	1.375
Speed (mm/rot)	55.00	55.00	55.00
Rotation Time (s)	0.5	0.6	0.8
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(45-700)	(35-720)	(35-680)
Manual mA	350.0	360.0	410.0
Noise Index	27.0	34.5	43.0
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% / 10% / Medium**	**30% / 10% / 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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.5**	**0.5**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(40-630)**	**(35-680)**	**(35-790)**
Manual mA	**310.0**	**340.0**	**480.0**
Noise Index	**26.5**	**32.5**	**39.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-675)**	**(30-630)**	**(35-740)**
Manual mA	**290.0**	**320.0**	**440.0**
Noise Index	**31.0**	**37.5**	**45.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Retrospectively-Gated CTA Chest (Non-Coronary) 5.31/5.32/5.33

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Heart rate guidelines: HR<70 BPM use prospective protocol, HR 70-80 BPM use retrospective protocol, HR>80 BPM nongated

- **Use PROSPECTIVELY gated protocol instead of this protocol if possible in order to decrease radiation dose!!** Evaluate for known or suspected type A (ascending) aortic dissection with possible involvement of aortic valve and/or coronary arteries. If cine images of the valves or heart are not needed, consider prospectively gated protocol to reduce radiation dose. Patient MUST be able to hold breath for 20 seconds. Patients must be 50 years or older. If younger, permission from radiologist is required. **If referred for cardiac CTA, follow separate cardiac CTA protocol, including beta-blockade and nitroglycerin protocol.**

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

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.
- Practice Breathing Instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

18G IV started in right arm

Use the Medrad™ P3T PA protocol. (Isovue 370)

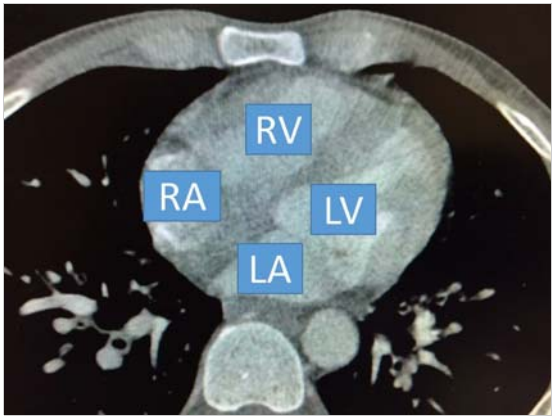
To set up P3T= choose P3T, Thorax, PA then click on ok. Confirm contrast and load fluids. After you set up the scan, you will need to enter scan duration on the injector. For the non-gated C/A/P enter the scan duration. For Chest only scans enter 16 seconds.

Field of View

As small as possible to a minimum of 32 cm, while still including entire lungs (can clip subcutaneous fat).

Scan Description

- Series 1 – PA and lateral scout
  - During inspiration breath-hold.
  - Coverage: Lower neck to mid-abdomen
- Series 2 – Non-contrast (only when ordered)
  - During inspiration breath-hold
  - Coverage: Lung apex to below the sma
- Series 3 – CTA
  - Use smartprep with 6 s diagnostic delay, with ROI on left ventricle
  - During inspiration breath-hold
  - Coverage: Same as non-contrast scan
- Series 4 (optional) – Delayed (FOR POST ENDOGRAFT ONLY)
  - Begin scan 2 min after beginning of contrast injection
  - During inspiration breath-hold
  - Coverage: Same as non-contrast scan



Smart Prep location should be the LV

Reformat Instructions

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

Also perform a retro recon of the chest 35-50% at 5% intervals. Slice thickness 1.25 mm in standard.

Reformats

Name	Source Recon	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	Bone	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

Miscellaneous

- Give requisition to the 3D lab for processing.
- Due to longer scan times patient may need to start breathing after scanning through the Lung is completed.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.5**	**0.6**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(45-700)**	**(35-720)**	**(35-680)**
Manual mA	**350.0**	**360.0**	**410.0**
Noise Index	**27.0**	**34.5**	**43.0**
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% / 10% / Medium**	**30% / 10% / 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)	**4**	**4**	**4**
Monitoring ISD (sec)	**2.5**	**2.5**	**2.5**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**6**	**6**	**6**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
AEC Type	**ECG Modulated**	**ECG Modulated**	**ECG Modulated**
mA Range	**(100-400)**	**(120-500)**	**(150-600)**
Start-End Phase	**65-85**	**65-85**	**65-85**
R-Peak Delay(%)	**70%**	**70%**	**70%**
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	**Snap shot segment**	**Snap shot segment**	**Snap shot segment**
Recon Option	**None**	**None**	**None**
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-675)**	**(30-630)**	**(35-740)**
Manual mA	**290.0**	**320.0**	**440.0**
Noise Index	**31.0**	**37.5**	**45.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Gated Chest and Non-Gated Abd/Pelvis CTA 5.34/5.35/5.36

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Known or suspected type A aortic dissection with possible involvement of aortic valve and/or coronary arteries, extending into abdomen/pelvis. Patients should be 50 years or older. If younger, permission from radiologist is required.

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

Oral Contrast

None

Pre-Scan Instructions

- Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.
- Practice Breathing Instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

18G IV started in right arm

Use the Medrad™ P3T PA protocol. (Isovue 370)

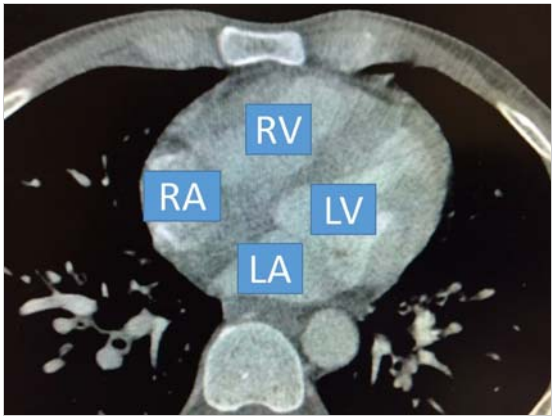
To set up P3T= choose P3T, Thorax, PA then click on ok. Confirm contrast and load fluids. After you set up the scan, you will need to enter scan duration on the injector. For the non-gated C/A/P enter the scan duration. For Chest only scans enter 16 seconds.

Field of View

As small as possible to a minimum of 32 cm, while still including entire lungs (can clip subcutaneous fat).

Scan Description

- Series 1 – PA and lateral scout
  - During inspiration breath-hold.
  - Coverage: Lower neck to mid thighs
- Series 2 – Non-contrast (only when ordered)
  - During inspiration breath-hold
  - Coverage: Lung apex to lesser trochanters
- Series 3 – CTA
  - Use smartprep with ROI on left ventricle
  - During inspiration breath-hold
  - Coverage: Same as non-contrast scan
  - All scanning is all top down, and is divided into two segments:
  1. Gated chest
  2. Non-gated abdomen/pelvis.
  - Prescribe the abdomen/pelvis to follow immediately after gated chest, with prescription contiguous with chest portion, and no overlap. Turn breath-hold instructions off for the abdomen/pelvis portion and manually breathe.
- Series 4 (optional) – Delayed (FOR POST ENDOGRAFT ONLY)
  - Begin scan 2 min after beginning of contrast injection
  - During inspiration breath-hold
  - Coverage: Same as non-contrast scan



Smart Prep location should be the LV

Reformat Instructions

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

Reformats

Name	Source Recon	DMPR or Manual		Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA	THIN Bone	non-Rev256: DMPR (Chest)	Rev256: Manual (Chest)	Average	1500/-700	2.5	1.25	sagittal
CO	THIN Bone	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 BODY	THIN ST	DMPR (Abd/Pelvis)		Average	450/50	3	2	sagittal
CO BODY	THIN ST	DMPR (Abd/Pelvis)		Average	450/50	3	2	coronal

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

Miscellaneous

Give requisition to the 3D lab for processing.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**80**	**100**	**120**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**80**	**100**	**120**
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.5**	**0.6**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(45-700)**	**(35-720)**	**(35-680)**
Manual mA	**350.0**	**360.0**	**410.0**
Noise Index	**27.0**	**34.5**	**43.0**
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% / 10% / Medium**	**30% / 10% / 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)	**4**	**4**	**4**
Monitoring ISD (sec)	**2.5**	**2.5**	**2.5**
Enhancement Threshold (HU)	**80**	**80**	**80**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Group 1, Scan Phase

	Small	Medium	Large
For all machines and Rev256 HR<70			
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Medium Cardiac**	**Medium Cardiac**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**80**	**80**
AEC Type	**ECG Modulated**	**ECG Modulated**	**ECG Modulated**
mA Range	**(100-400)**	**(100-400)**	**(100-400)**
Start-End Phase	**65-85**	**65-85**	**65-85**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
For Rev256 HR>70 only			
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Medium Cardiac**	**Medium Cardiac**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**80**	**80**
AEC Type	**ECG Modulated**	**ECG Modulated**	**ECG Modulated**
mA Range	**(100-400)**	**(100-400)**	**(100-400)**
Start-End Phase	**65-85**	**65-85**	**65-85**
R-Peak Delay(%)	**70%**	**70%**	**70%**
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	**Snap shot segment**	**Snap shot segment**	**Snap shot segment**
Recon Option	**None**	**None**	**None**
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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**
Recon 3 (Secondary) (Rev256 Only)			
DFOV	HR>70	HR>70	HR>70
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 4 (Secondary) (Rev256 Only)			
DFOV	HR>70	HR>70	HR>70
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			

Series 3, 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-675)**	**(40-770)**	**(45-800)**
Manual mA	**390.0**	**420.0**	**590.0**
Noise Index	**26.5**	**32.5**	**39.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-675)**	**(30-630)**	**(35-740)**
Manual mA	**290.0**	**320.0**	**440.0**
Noise Index	**31.0**	**37.5**	**45.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Prospectively-Gated Coronary CTA 5.37/5.38/5.39

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

For imaging of the coronaries. Heart rate guidelines: HR<65 use prospective protocol, HR 65-75 use retrospective protocol, HR over 75 do not scan and consult physician.

Oral Contrast

None

Pre-Scan Instructions

- Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.
- Practice Breathing Instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

Medrad™ Coronary Protocol

Timing bolus:

- 10 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec
- 50 mL Sodium Chloride 0.9% @ 5 mL/sec

Coronary:

- Iodine
  - Patient weight < 300 lbs.
    - 80 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec
  - Patient weight >300 lbs.
    - 100 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec
- Chaser
  - All weights
    - 50 mL Sodium Chloride 0.9% @ 5 mL/sec

Field of View

25 cm

Scan Description

- Series 1- PA and Lateral Scout
- Coverage: Lower Neck to Below lung Base

- Series 2- Non - Contrast – Calcium Score
  - Coverage: Carina to below heart

- Series 3 – Timing Bolus = on the ascending aorta (use your without series to find the level)
  - Use 10 ml of Iodixanol and 50 ml of saline
  - Take 16 + Bolus time = Prep delay
  - If the timing for the prep delay is less that 20 seconds, please change the prep group to 20 seconds. We do not want to use anything less than 20 seconds for a delay.

- Series 4 – CTA
  - Use Timing Bolus
  - Coverage: Same as non - contrast scan
  - Number 13 breathing instructions on the scanner (10 s breath in and out + 4 s pause)

Reformat Instructions

- Non Revolution 256 Scanners
  - Using the CTA series, retro recon whatever the scanner will allow. Example: enter 5-95 @ 5% and the scanner will change your numbers to what it will allow. Re-label your series discription and confirm.
  - Please retro recon the CTA series with the largest DFOV, bone +, ww 1500 wl -700, 0.625 mm X 0.625 mm, IQ Enhance On, Plus Mode On, ASiR/ASiR-V set to 0%.
  - Using our routine chest reformats, perform a manual axial MIP, CO and SA reformat.
- Revolution 256 Scanners
  - No retro recons are needed, they are all set to auto run.
  - All reformats (AX MIP/CO/SA) are set up using DMPR.

Reformats

Name	Source Recon	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	Bone	Manual	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	Manual	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

All the images are sent to (ALI_Store) PACS. Do NOT need to send to 3D Lab. Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	**120**	**120**	**120**
Scout 1 mA	**10**	**20**	**40**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**120**	**120**
Scout 2 mA	**10**	**20**	**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	**Cine**	**Cine**	**Cine**
Cardiac Mode	**Segment**	**Segment**	**Segment**
Beam Collimation	**20**	**20**	**20**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**120**	**120**	**120**
AEC Type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(125-125)**	**(250-250)**	**(500-500)**
Smart Score Pro	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

Series 2 Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Segment**	**Segment**	**Segment**
Recon Option			
ASiR/ASiR256/DLIR	**30%**	**30%**	**30%**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

Bolus Tracking

For non Revolution CT 256, do a timing bolus. For Revolution CT 256 use the following:

	Small	Medium	Large
mA	**40**	**40**	**40**
Monitoring Delay (sec)	**7.0**	**7.0**	**7.0**
Monitoring ISD (sec)	**1.0**	**1.0**	**1.0**
Enhancement Threshold (HU)	**150**	**150**	**100**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Small	Medium	Large
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
mA	**400**	**500**	**600**
Padding Override	**ON**	**ON**	**ON**
Cardiac Gating	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Adaptive Gating	**ON**	**ON**	**ON**
Max #Beats to Avoid	**2**	**2**	**2**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Snap Shot Segment**	**Snap Shot Segment**	**Snap Shot Segment**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 60%**	**60% / 60%**	**60% / 60%**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**n/a**	**n/a**	**n/a**
Recon 2 (Secondary)			
DFOV	Retro for lungs	Retro for lungs	Retro for lungs
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 3 (Secondary) (Rev256 Only)			
DFOV	Snap Shot Freeze (option)	Snap Shot Freeze (option)	Snap Shot Freeze (option)
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 4 (Secondary) (Rev256 Only)			
DFOV	Rev256 only Recon	Rev256 only Recon	Rev256 only Recon
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			

Retrospectively-Gated Coronary CTA 5.40/5.41/5.42

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

For imaging of the coronaries. Heart rate guidelines: HR<65 use prospective protocol, HR 65-75 use retrospective protocol, HR over 75 do not scan and consult physician.

Oral Contrast

None

Pre-Scan Instructions

- Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.
- Practice Breathing Instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

Medrad™ Coronary Protocol

Timing bolus:

- 10 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec
- 50 mL Sodium Chloride 0.9% @ 5 mL/sec

Coronary:

- Iodine
  - Patient weight < 300 lbs.
    - 80 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec
  - Patient weight >300 lbs.
    - 100 mL Iodixanol (Visipaque 320) 320 MG/ML injection @ 5 mL/sec
- Chaser
  - All weights
    - 50 mL Sodium Chloride 0.9% @ 5 mL/sec

Field of View

25 cm

Scan Description

- Series 1- PA and Lateral Scout
- Coverage: Lower Neck to Below lung Base

- Series 2- Non - Contrast – Calcium Score
  - Coverage: Carina to below heart

- Series 3 – Timing Bolus = on the ascending aorta (use your without series to find the level)
  - Use 10 ml of Iodixanol and 50 ml of saline
  - Take 16 + Bolus time = Prep delay
  - If the timing for the prep delay is less that 20 seconds, please change the prep group to 20 seconds. We do not want to use anything less than 20 seconds for a delay.

- Series 4 – CTA
  - Use Timing Bolus
  - Coverage: Same as non - contrast scan
  - Number 13 breathing instructions on the scanner (10 s breath in and out + 4 s pause)

Reformat Instructions

Cardiac Recons:

- Click on RX (in the top rt corner) to choose % interval.
- Do 65%-75% at 5% interval. Slice thickness 0.6 mm in standard (for both series).
- Do 5%-95% at 10% interval AND 35-50% at 5%. Slice thickness 1.25 mm in standard (**for the retrospective scans only**).
- Ask whoever is monitoring case what they would like for other recons.

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

Reformats

Name	Source Recon	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	Bone	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

All images are sent to ALI and (VCTAW1) 3D Lab. Send CTA to (AW1) 3D Lab. Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	**Cine**	**Cine**	**Cine**
Cardiac Mode	**Segment**	**Segment**	**Segment**
Beam Collimation	**20**	**20**	**20**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**120**	**120**	**120**
AEC Type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(125-125)**	**(250-250)**	**(500-500)**
Smart Score Pro	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

Series 2, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Segment**	**Segment**	**Segment**
Recon Option			
ASiR/ASiR256/DLIR	**30%**	**30%**	**30%**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

Series 3, Timing Bolus

Timing Bolus

Series 4, Scan Phase

	Small	Medium	Large
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
AEC Type	**ECG Modulated**	**ECG Modulated**	**ECG Modulated**
mA Range	**(100-400)**	**(120-500)**	**(150-600)**
Start-End Phase	**65-85**	**65-85**	**65-85**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.625**	**0.625**	**0.625**

Note: the interval in the table above does not match the table below, the correct interval is 0.4 mm as stated in the table below. This will ensure equal slice thickness and overlap between the prospective and retrospective gated coronary CTA protocols.

Series 4, Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Snap Shot Segment**	**Snap Shot Segment**	**Snap Shot Segment**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.4**	**0.4**	**0.4**
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**

TAVI CTA 5.43/5.44/5.45

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Pre scan before a TAVI procedure. If the order is for a "valve-in-valve" you only need to scan the gated chest, skip the CAP portion of the exam.

Oral Contrast

None

Pre-Scan Instructions

Note, the Optima 660 (CT3) should not be used for TAVI scans if possible.

Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.

Patient will be scanned with arms up. Practice breathing instructions. Remind the patient not to bear down. You will need to manually breath the patient.

IV Contrast Parameters

150 mL Iopamidol (Isovue 370) 76% @ 5 mL/sec

100 mL Sodium Chloride 0.9% @ 5 mL/sec

Field of View

30cm (Small Adult), 36cm (Medium Adult), 50cm (Large Adult)

Scan Description

- Series 1 – PA and lateral scout
  - Ask patient to stop breathing.
  - Coverage: Lower neck to symphysis pubis.
- Series 2 – CTA
  - Use smartprep with a minimum diagnostic delay, with ROI on ascending aorta at the level of the carina
  - Ask patient to stop breathing.
  - Coverage: Lung apices through lesser trochanters.
  - All scanning is all top down, and is divided into two segments:
  1. Gated chest
  2. Non-gated abdomen/pelvis
- NOTE: If the scan is ordered **without** contrast use the non-gated Chest/Abdomen/Pelvis protocol #5.28,5.29,5.30. Use the without series.
  - Prescribe the abdomen/pelvis to follow immediately after gated chest, with prescription contiguous with chest portion, and no overlap. Turn breath-hold instructions off for the abdomen/pelvis portion and manually breathe.
    - For Recon 2 5% to 95% you must cone down to just the heart. Just above the arch to the bottom of the heart in a 25 FOV. You cannot have more than 3000 images or it will not work for 3D.

- Recon 2 must be entered on the cardiac reconstruction screen and should be preprogrammed onto the scanner with the following parameters: no cardiac filter, 0.625 mm slice thickness, 0.625 mm interval, and reconstructed from 5% to 95% phase in 10 % steps.
- For Recon 3 35-65% (otherwise same as Recon 2) you must cone down to just the heart. Just above the arch to the bottom of the heart in a 25 FOV. You cannot have more than 3000 images or it will not work for 3D.
- Recon 3 must be entered on the cardiac reconstruction screen and should be preprogrammed onto the scanner with the following parameters: no cardiac filter, 0.625 mm slice thickness, 0.625 mm interval, and reconstructed from 35 to 65% phase in 10 % steps .

For patients with variable heart rates below 70BPM "Override the monitor heart rate"

On the Discovery HD 750 /Revolution HD

When the heart rate varies by more than 10 BPM, the HR should be manually entered. To calculate what HR should be entered, use the table below. The override HR you enter will be the first number listed in the heart rate range group that is lower than your minimum heart rate observed.

For example, if a patient's HR varies from 53 to 66, the override HR should be in the 43-49 range. We always pick the smallest HR within the range, so you would enter 43 for the override HR.

Another example: If a patient's HR ranged from 45 to 57, you would enter 30 as the override HR as 30 is the smallest HR within the grouping below a HR of 45.

For the HD 750 (CT4) and VCT (ERCT) Scanner

Heart rate range	Gantry speed	Pitch
30 to 42 BPM	0.4 sec	0.18
43 to 49 BPM	0.4 sec	0.20
50 to 59 BPM	0.4 sec	0.23
60 to 69 BPM	0.4 sec	0.26

For the Optima 660 (CT3) Scanner (Note, the Optima 660 should not be used for TAVR scans if possible)

Heart rate range	Gantry speed	Pitch
30 to 39 BPM	0.5 sec	0.2
40 to 49 BPM	0.5 sec	0.24
50 to 59 BPM	0.5 sec	0.3
60 to 74 BPM	0.5 sec	0.325

1. From the ViewEdit screen, view the BPM displayed on the Gating button.

2. From the CardIQ SnapShot screen, toggle Heart Rate Override On.

3. In the Heart Rate text field, type a minimum HR value that covers the lowest expected to occur during the scan (as described above) and press Enter. This insures a low enough pitch is used for the acquisition.

Reformat Instructions

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

Reformats

Name	Source Recon	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	Bone	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

Send the entire study to (ALI_Store) PACS including the Dose Information Slide and the smart prep image. 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	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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)	4	4	4
Monitoring ISD (sec)	2.5	2.5	2.5
Enhancement Threshold (HU)	80	80	80
Diagnostic Delay	Auto Minimum	Auto Minimum	Auto Minimum

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**	**Snap Shot Segment (Helical)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**100**	**120**
AEC Type	**ECG Modulated**	**ECG Modulated**	**ECG Modulated**
mA Range	**(500-500)**	**(600-600)**	**(680-680)**
Start-End Phase	**65-85**	**65-85**	**65-85**
R-Peak Delay(%)	**70%**	**70%**	**70%**
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	**Snap shot segment**	**Snap shot segment**	**Snap shot segment**
Recon Option	**None**	**None**	**None**
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (Secondary) (Rev256 Only)			
DFOV	5-95%	5-95%	5-95%
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 3 (Secondary) (Rev256 Only)			
DFOV	35-65%	35-65%	35-65%
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 4 (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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-675)**	**(40-770)**	**(45-800)**
Manual mA	**390.0**	**420.0**	**590.0**
Noise Index	**26.5**	**32.5**	**39.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, 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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Prospectively-Gated CTA Chest (Non-Coronary) 5.46/5.47/5.48

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Heart rate guidelines: HR<70 BPM use prospective protocol, HR 70-80 BPM use retrospective protocol, HR >80 BPM nongated chest. Evaluate for ascending aortic aneurysm, dissection, or injury. Evaluate cardiac or vascular abnormality without cardiac motion.

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

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.
- Practice breathing instructions. Remind the patient not to bear down. Suspension breathing is turned on

IV Contrast Parameters

18G IV started in right arm

Use the Medrad™ P3T PA protocol. (Isovue 370)

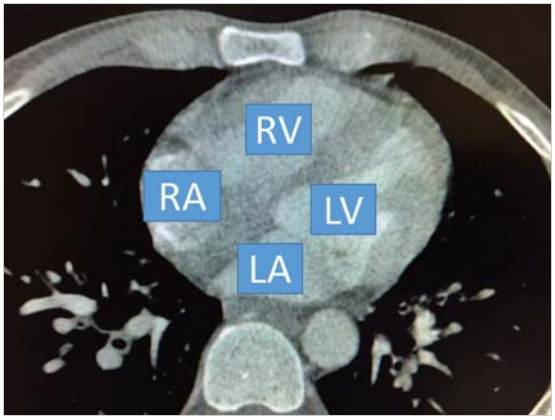
To set up P3T= choose P3T, Thorax, PA then click on ok. Confirm contrast and load fluids. After you set up the scan, you will need to enter scan duration on the injector. For the non-gated C/A/P enter the scan duration. For Chest only scans enter 16 seconds.

Field of View

As small as possible to a minimum of 32 cm, while still including entire lungs (can clip subcutaneous fat).

Scan Description

- Series 1 – PA and lateral scout
  - Remind the patient not to bear down. Suspension breathing is turned on
  - Coverage: Mid abdomen to lower neck
- Series 2 – Non-contrast (only when ordered)
  - Coverage: diaphragm to lung apex. (Scanning bottom up)
- Series 3 – CTA (IF the Without series is skipped, make sure to switch the Start and End Location of your CTA to scan bottom up)
  - (Rev 256) Use smartprep with minimum diagnostic delay, with ROI on the descending aorta, **dynamic transition is turned on**
  - (Non Rev 256) Use smartprep with minimum diagnostic delay, with ROI on left ventricle
  - Ask the patient to "stop breathing"
  - Coverage: Same as non-contrast scan



Smart Prep location should be the LV

Reformat Instructions

- Non Revolution 256 Scanners
  - Using the CTA series, retro recon whatever the scanner will allow. Example: enter 5-95 @ 5% and the scanner will change your numbers to what it will allow. Re-label your series discription and confirm.
  - Please retro recon the CTA series with the largest DFOV, bone +, ww 1500 wl -700, 0.625 mm X 0.625 mm, IQ Enhance On, Plus Mode On, ASiR/ASiR-V set to 0%.
  - Using our routine chest reformats, perform a manual axial MIP, CO and SA reformat.
- Revolution 256 Scanners
  - No retro recons are needed, they are all set to auto run.
  - All reformats (AX MIP/CO/SA) are set up using DMPR.

Reformats

Name	Source Recon	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	Bone	Manual	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	Bone	Manual	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

For axial and reformatted images: Please send the entire study to PACS 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.

- You will need to review your images in PACS to assure the CAD read was processed.
- If the CAD images are missing after you have sent them, please call PACS. There could be an issue with the server.
- If there is a lot of motion or the arms are at the side, CAD read may not work.
- If CAD read does not work on the patients exam, please change the request.

Miscellaneous

Give requisition to the 3D lab for processing.

Acquisition Parameters

Series 1, Scout

	Small	Medium	Large
Scout 1 kV	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	1.375	1.375	1.375
Speed (mm/rot)	55.00	55.00	55.00
Rotation Time (s)	0.5	0.6	0.8
kV	100	120	140
AEC type	smart mA	smart mA	smart mA
mA Range	(45-700)	(35-720)	(35-680)
Manual mA	350.0	360.0	410.0
Noise Index	27.0	34.5	43.0
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% / 10% / Medium**	**30% / 10% / 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)	**50**	**50**	**50**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 3, Scan Phase

	Small	Medium	Large
For all machines and Rev256 HR<70			
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
mA	**400**	**500**	**600**
Padding Override	**ON**	**ON**	**ON**
Cardiac Gating	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Adaptive Gating	**ON**	**ON**	**ON**
Max #Beats to Avoid	**2**	**2**	**2**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
For Rev256 HR>70			
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
mA	**400**	**500**	**600**
Padding Override	**ON**	**ON**	**ON**
Cardiac Gating	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Adaptive Gating	**ON**	**ON**	**ON**
Max #Beats to Avoid	**2**	**2**	**2**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**

Series 3 Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Snap Shot Segment**	**Snap Shot Segment**	**Snap Shot Segment**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 60%**	**60% / 60%**	**60% / 60%**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**n/a**	**n/a**	**n/a**
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**

Upper Extremity CTA 4.10/4.11/4.12

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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. 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

18-20G antecubital IV started in unaffected arm

100 mL Iopamidol (Isovue 370) 76% @ 5 mL/sec

50 mL Sodium Chloride 0.9% @ 5 mL/sec

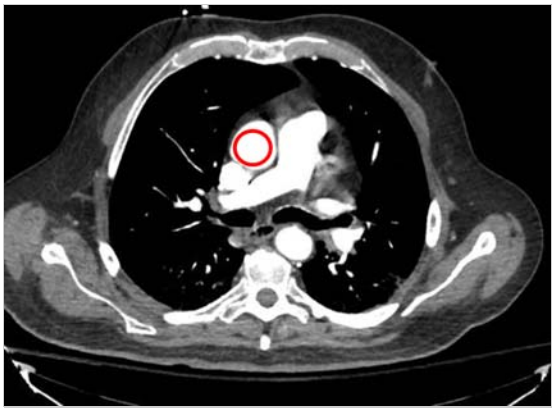
Injection rate of 5mL per second, unless patient is over 100 kilos then inject at 6mL per second.

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 on protocol sheet. If not specified, then contact protocolling physician to determine appropriate coverage.
- Series 3, Group 1 – CTA
  - Coverage: The exact same as your non-contrast scan.
  - Smart prep on the ascending aorta at the level of the carina
- Series 3, Group 2 - CTA
  - Immediately follow with 2nd scan from the elbow to the fingertips (all in one series, but two groups)



Smartprep location ROI for ascending aorta Position

Reformat Instructions

Reformats

Name	Source Recon	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 ALI 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	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.5**	**0.6**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-590)**	**(30-590)**	**(30-620)**
Manual mA	**300.0**	**300.0**	**370.0**
Noise Index	**23.0**	**29.5**	**37.0**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / 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	**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	**0.984**	**0.984**	**0.984**
Speed (mm/rot)	**39.40**	**39.40**	**39.40**
Rotation Time (s)	**0.5**	**0.5**	**0.5**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(120-675)**	**(110-770)**	**(120-800)**
Manual mA	**390.0**	**420.0**	**590.0**
Noise Index	**14.5**	**17.5**	**21.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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	**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	**0.984**	**0.984**	**0.984**
Speed (mm/rot)	**39.40**	**39.40**	**39.40**
Rotation Time (s)	**0.5**	**0.5**	**0.5**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(120-675)**	**(110-770)**	**(120-800)**
Manual mA	**390.0**	**420.0**	**590.0**
Noise Index	**14.5**	**17.5**	**21.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.

IV Contrast Parameters

Medrad™ Run Off protocol:

- 100 mL Iopamidol (Isovue 370) 76% @ 5-6mL/sec
- 70 mL Sodium Chloride 0.9% @ 5-6 mL/sec

1st phase:

- 40 mL Iopamidol (Isovue 370) 76% @ 6 mL/sec

2nd phase:

- 60 mL Iopamidol (Isovue 370) 76% @ 4 mL/sec

3rd phase:

- 50 mL Sodium Chloride 0.9% @ 4 mL/sec

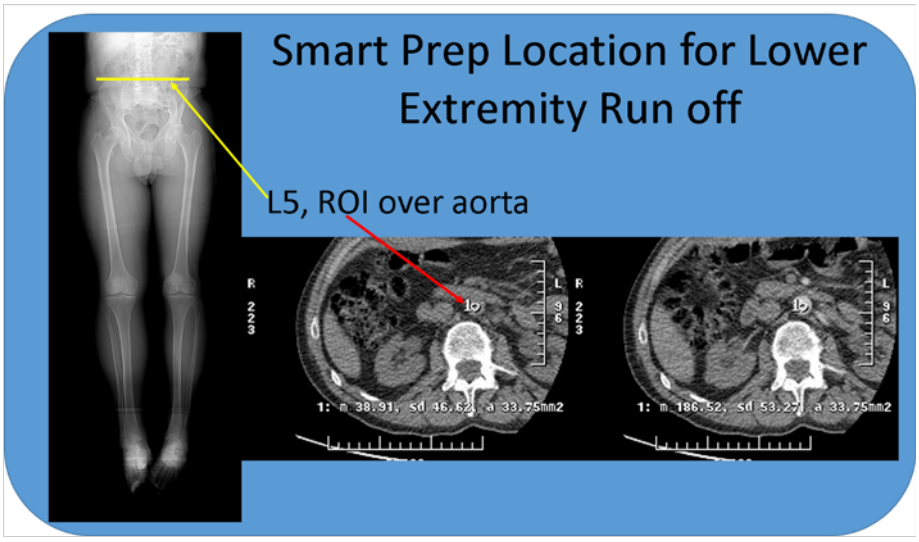
Field of View

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 on protocol sheet. 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. If the smart prep has not peaked after 30 seconds, please scan. The REV 256 has a diagnostic delay of 7 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 Recon	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 (ALI_Source) Thin PACS and all other series (including the Dose Information Slide) to (ALI_Store) PACS. 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	**80**	**100**	**120**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**80**	**100**	**120**
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.5**	**0.6**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(35-590)**	**(30-590)**	**(30-620)**
Manual mA	**300.0**	**300.0**	**370.0**
Noise Index	**23.0**	**29.5**	**37.0**
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	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option			
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / 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)	**10**	**10**	**10**
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	**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	**0.984**	**0.984**	**0.984**
Speed (mm/rot)	**39.40**	**39.40**	**39.40**
Rotation Time (s)	**0.5**	**0.5**	**0.5**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(120-675)**	**(110-770)**	**(120-800)**
Manual mA	**390.0**	**420.0**	**590.0**
Noise Index	**14.5**	**17.5**	**21.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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	**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	**0.984**	**0.984**	**0.984**
Speed (mm/rot)	**39.40**	**39.40**	**39.40**
Rotation Time (s)	**0.5**	**0.5**	**0.5**
kV	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(120-675)**	**(110-770)**	**(120-800)**
Manual mA	**390.0**	**420.0**	**590.0**
Noise Index	**14.5**	**17.5**	**21.5**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
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) 6.43/6.44/6.90

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 ALI 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	**80**	**100**	**120**
Scout 1 mA	**10**	**10**	**10**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**80**	**100**	**120**
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	**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	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.5**	**0.6**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(45-700)**	**(35-720)**	**(35-680)**
Manual mA	**350.0**	**360.0**	**410.0**
Noise Index	**27.0**	**34.5**	**43.0**
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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Prospectively-Gated Left Atrial Appendage 5.73/5.74/5.75

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Evaluation for left atrial thrombus, pre-op for device (Watchman (TM)) implant. Left atrial appendage occlusion, also referred to as Left atrial appendage closure is a treatment strategy to reduce the risk of left atrial appendage blood clots from entering the bloodstream and causing a stroke in patients with non-valvular atrial fibrillation.

Oral Contrast

None

Pre-Scan Instructions

- Tilt Gantry to S10,then back to zero, when it gets back to zero press both tilt buttons at the same time to "reset" the scanner.
- Practice Breathing Instructions. Ask patient to cough just prior to the scan.

IV Contrast Parameters

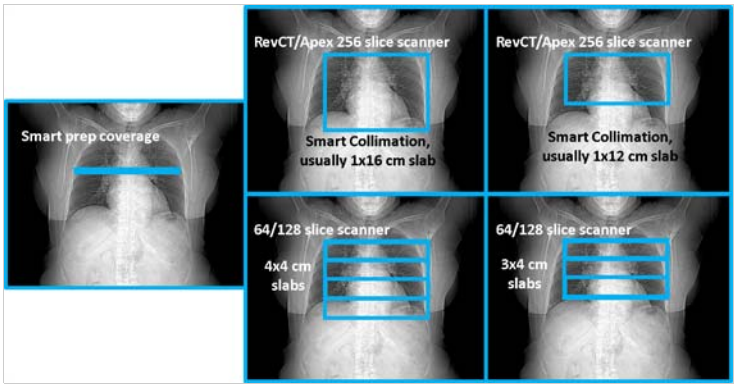
- Inject 80 mL of Iodixanol contrast and 50 mL Sodium Chloride 0.9% chaser at a rate of 5cc/second.
- 18g IV in Right Arm preferably, okay in left.

Field of View

25 cm

Scan Description

- Series 1 – PA and lateral scout
  - Coverage: Lower Neck to Below lung Base
  - Expiration breathing instructions
- Series 2 - CTA
  - Scan on expiration, this is a gated study
  - SmartPrep on the ascending aorta at the level of the carina
  - 1st Group Coverage: You need to cover the LA and the pulmonary vein (i.e. 1 cm above the carina bifurcation to the diaphragm). Use 4 slabs only.
  - 2nd Group - Delay (1 minute post contrast) Coverage: You need to cover just the LAA. Use just 3 slabs, pull the bottom up one slab.



Scan coverages

Reformat Instructions

Both prospective series need to be reconstructed at 30% R-R with a 0% interval. The slice thickness should be 0.625 mm.

For the Delayed series, please create a 2.5 mm thickness by 1.25 mm interval axial reformat with a skin to to skin FOV. You will need to do a retro recon for this in order to change the FOV larger than the 25 cm we used for the delay RFOV.

- Non Revolution 256 Scanners
  - Please retro recon the CTA series with a bone +, ww 1500 wl -700, 0.625 mm X 0.625 mm, IQ Enhance On, Plus Mode On, ASiR/ASiR-V set to 0%.
  - Using our routine chest reformats, perform a manual axial MIP, CO and SA of the chest on the **with contrast CTA series**.
- Revolution 256 Scanners
  - Please retro recon the Thin ST CTA series to the largest DFOV. Then use this series to manually create the axial MIP reformat.

Reformats

Name	Source Recon	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	BONE	DMPR	Average	1500/-700	2.5	1.25	sagittal Include the spine and sternum.
CO	BONE	DMPR	Average	1500/-700	2.5	1.25	coronal Include the spine and sternum.

Networking

All the images are sent to (ALI_Store) PACS. Do NOT need to send 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	**120**	**120**	**120**
Scout 1 mA	**10**	**20**	**40**
Scout 1 Angle	**180**	**180**	**180**
Scout 2 kV	**120**	**120**	**120**
Scout 2 mA	**10**	**20**	**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)	**4**	**4**	**4**
Monitoring ISD (sec)	**2.5**	**2.5**	**2.5**
Enhancement Threshold (HU)	**80**	**80**	**80**
Diagnostic Delay	**Auto Minimum**	**Auto Minimum**	**Auto Minimum**

Series 2, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
mA	**400**	**500**	**600**
Padding Override	**ON**	**ON**	**ON**
Cardiac Gating	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Adaptive Gating	**ON**	**ON**	**ON**
Max #Beats to Avoid	**2**	**2**	**2**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**

Note: for the LAA protocol change the gating center to 30% from 70%.

Series 2, Group 1 Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Snap Shot Segment**	**Snap Shot Segment**	**Snap Shot Segment**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 60%**	**60% / 60%**	**60% / 60%**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**n/a**	**n/a**	**n/a**
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**
Recon 3 (Secondary) (Rev256 Only)			
DFOV	Earliest to Latest	Earliest to Latest	Earliest to Latest
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 4 (Secondary) (Rev256 Only)			
DFOV	Snap Shot Freeze	Snap Shot Freeze	Snap Shot Freeze
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			

Series 2, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Cardiac**	**Cardiac**	**Cardiac**
Cardiac Mode	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**	**Snap Shot Pulse (Cine)**
Beam Collimation	**40**	**40**	**40**
Scan FOV	**Medium Cardiac**	**Large Cardiac**	**Large Cardiac**
Rotation Time (s)	**0.35**	**0.35**	**0.35**
kV	**80**	**100**	**120**
mA	**400**	**500**	**600**
Padding Override	**ON**	**ON**	**ON**
Cardiac Gating	**ON**	**ON**	**ON**
R-Peak Delay(%)	**70%**	**70%**	**70%**
Adaptive Gating	**ON**	**ON**	**ON**
Max #Beats to Avoid	**2**	**2**	**2**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**

Note: for the LAA protocol change the gating center to 30% from 70%.

Series 2, Group 2 Recons

	Small	Medium	Large
Recon 1 (Primary)			
DFOV	**25**	**25**	**25**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Snap Shot Segment**	**Snap Shot Segment**	**Snap Shot Segment**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 60%**	**60% / 60%**	**60% / 60%**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**n/a**	**n/a**	**n/a**
Recon 2 (Secondary) (Rev256 Only)			
DFOV	Earliest to Latest	Earliest to Latest	Earliest to Latest
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			
Recon 3 (Secondary) (Rev256 Only)			
DFOV	Snap Shot Freeze	Snap Shot Freeze	Snap Shot Freeze
Recon Type			
WW/WL			
Recon Option			
Recon Option			
ASiR/ASiR256/DLIR			
Slice Thickness (mm)			
Interval (mm)			

Bony Pelvis/Hips/SI/Femur/FAI (Without Metal) 8.1/8.2/8.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 @ 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

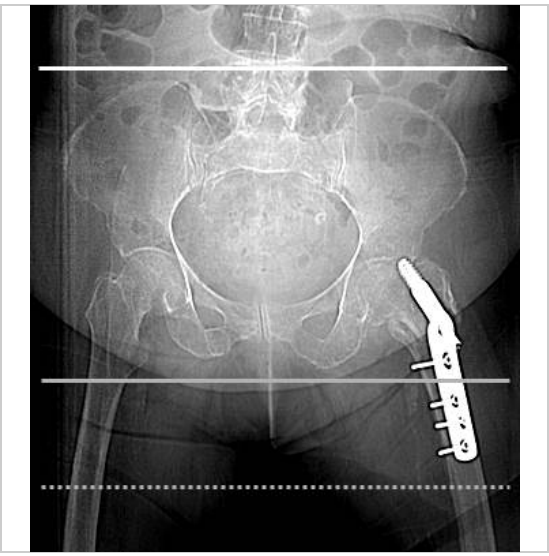
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

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.

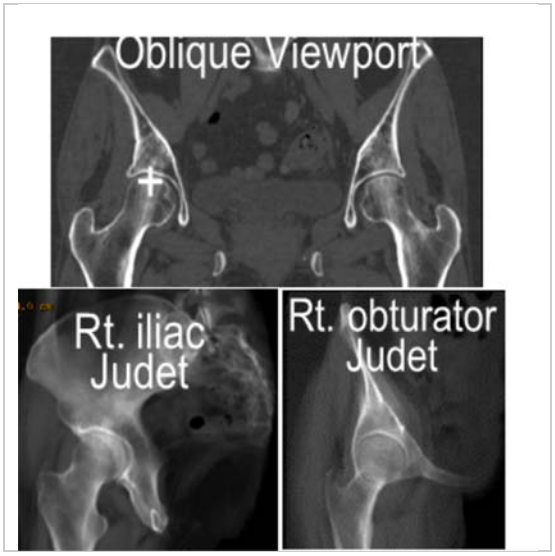
- Straight Axial Reformats
  - Set-up off a coronal image that shows both femoral heads.
  - Angle such that slices cut through femoral heads evenly (dotted line).
  - Cover from iliac crests through ischial tuberosities and lesser trochanters.
- Straight Coronal Reformats
  - Set-up off an axial image 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)

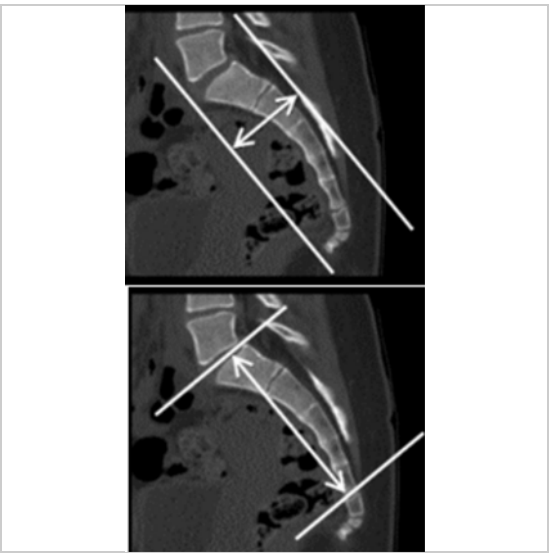
- Click “Rotate/Translate” button; set to 45 degrees
    - Scanner 1, 4, & ER: To locate the Rotate/Translate button, click on “Display button” (blue box with the letter A)
- Click to “Rotate to Left”
- Save Image (right mouse button)
- Click TWICE to rotate to center, then to right
- Save this image 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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

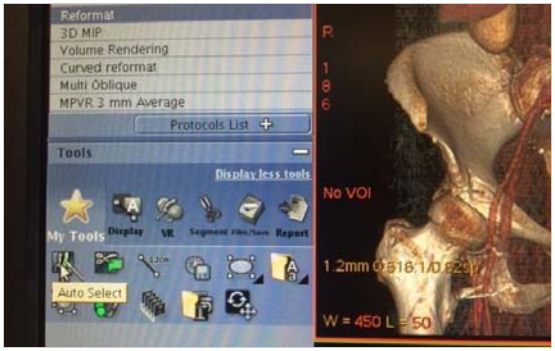
Miscellaneous

None

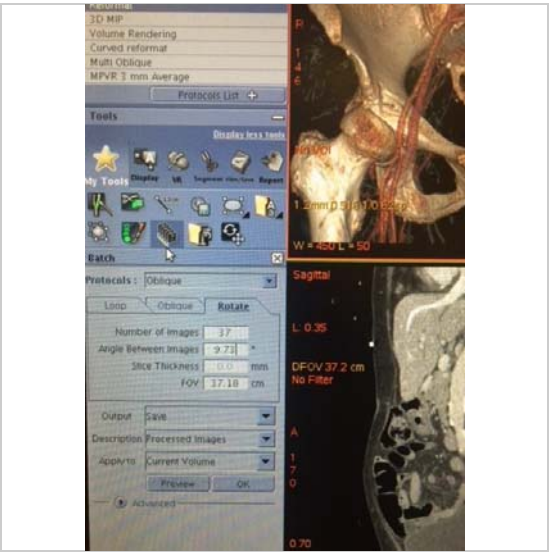
- Choose the standard thin images (usually A:3) from pacs and load into vitrea
- On the left side of the screen, under protocol, choose “musculoskeletal CT”
- In the 3D image, the lower right corner, click on “pick”
- If you need to remove the table, in the 3D port click on the letter “S” on the bottom of the port
- This will place the pelvis in a superior position
- Under segment anatomy in the top left corner of the screen, click on “sculpt”
- Place you mouse back in the 3D port
- You will see a pencil, hold the left mouse down until the pencil becomes small
- Click and drag the pencil around the table completely, bringing the pencil back to when you started to draw
- There will be a red circle around the area you want to remove
- A small box “3D sculpt” will come up in the middle of the screen and click on remove
- Click on the letter “A” in the bottom of the port to bring the pelvis back into the AP position
- Click on the Batch Tab (top left corner of screen)
- Under 3D rotation, click on “Full 360 rotation”
- Under output control, you will see “number of images”. Hover over the number just above the slider bar and type in 37.
- Click on “Batch” at the bottom of the screen to save

3D Spinner on GE Scanner Directions

- These are only needed on a trauma patient that had a bony pelvis scanned or reformatted from prior data set.
- You will need to create one horizontal 3D spinner of the bony pelvis.
- Load the 1.25 standard images from the bony pelvis into reformat.
- In the oblique port, right click on the patient's name and choose hide.
- In the oblique port, right click on the word Oblique and change to VR on the drop down list.
- On the left side of the screen choose tools then Auto Select.



- Click on batch
- Choose rotate
- Change number of images to 37 and click ok



- Close out of exam and send to ALI-Store

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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.6**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(70-590)**	**(70-740)**	**(60-620)**
Manual mA	**300.0**	**370.0**	**380.0**
Noise Index	**20.0**	**26.0**	**32.5**
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**		
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 Metal

	Small	Medium	Large
Recon 3 (Secondary)			
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**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**		
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 @ 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

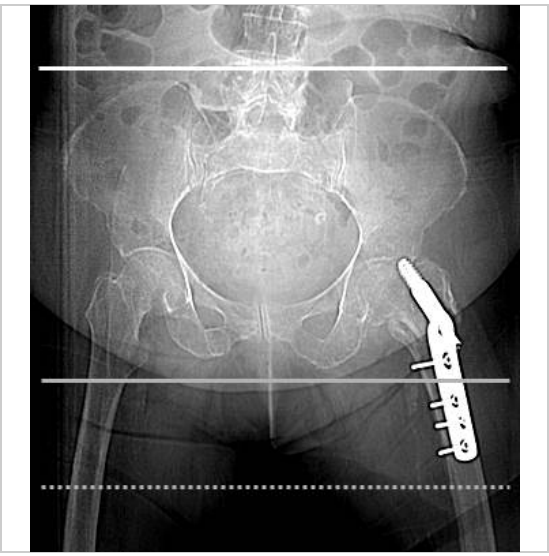
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

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.

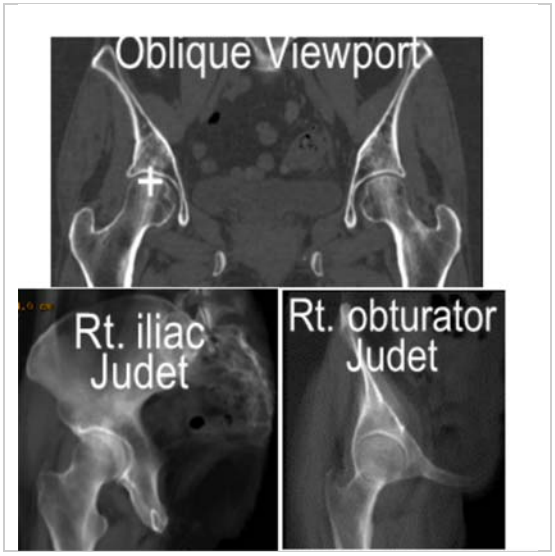
- Straight Axial Reformats
  - Set-up off a coronal image that shows both femoral heads.
  - Angle such that slices cut through femoral heads evenly (dotted line).
  - Cover from iliac crests through ischial tuberosities and lesser trochanters.
- Straight Coronal Reformats
  - Set-up off an axial image 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)

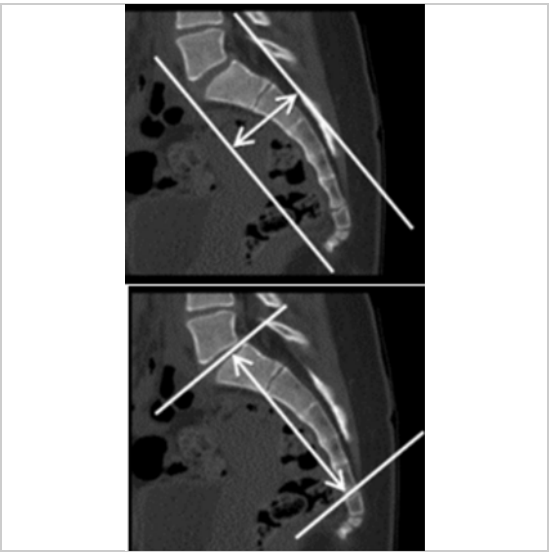
- Click “Rotate/Translate” button; set to 45 degrees
    - Scanner 1, 4, & ER: To locate the Rotate/Translate button, click on “Display button” (blue box with the letter A)
- Click to “Rotate to Left”
- Save Image (right mouse button)
- Click TWICE to rotate to center, then to right
- Save this image 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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

Miscellaneous

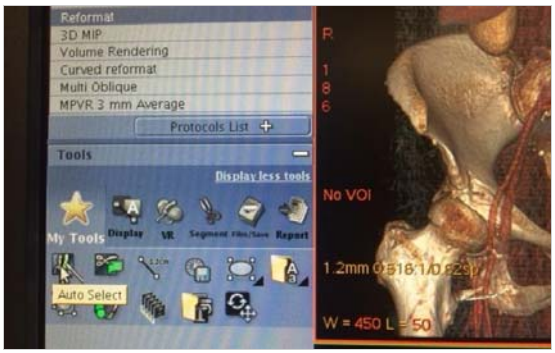
None

- Choose the standard thin images (usually A:3) from pacs and load into vitrea
- On the left side of the screen, under protocol, choose “musculoskeletal CT”
- In the 3D image, the lower right corner, click on “pick”
- If you need to remove the table, in the 3D port click on the letter “S” on the bottom of the port
- This will place the pelvis in a superior position
- Under segment anatomy in the top left corner of the screen, click on “sculpt”

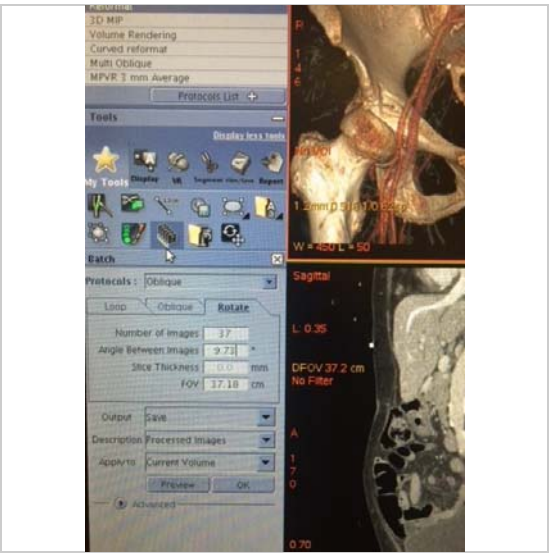
- Place you mouse back in the 3D port
- You will see a pencil, hold the left mouse down until the pencil becomes small
- Click and drag the pencil around the table completely, bringing the pencil back to when you started to draw
- There will be a red circle around the area you want to remove
- A small box “3D sculpt” will come up in the middle of the screen and click on remove
- Click on the letter “A” in the bottom of the port to bring the pelvis back into the AP position
- Click on the Batch Tab (top left corner of screen)
- Under 3D rotation, click on “Full 360 rotation”
- Under output control, you will see “number of images”. Hover over the number just above the slider bar and type in 37.
- Click on “Batch” at the bottom of the screen to save

3D Spinner on GE Scanner Directions

- These are only needed on a trauma patient that had a bony pelvis scanned or reformatted from prior data set.
- You will need to create one horizontal 3D spinner of the bony pelvis.
- Load the 1.25 standard images from the bony pelvis into reformat.
- In the oblique port, right click on the patient’s name and choose hide.
- In the oblique port, right click on the word Oblique and change to VR on the drop down list.
- On the left side of the screen choose tools then Auto Select.



- Click on batch
- Choose rotate
- Change number of images to 37 and click ok



- Close out of exam and send to ALI-Store

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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.6**	**0.9**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-680)**	**(70-700)**	**(60-680)**
Manual mA	**340.0**	**350.0**	**410.0**
Noise Index	**11.5**	**17.5**	**25.5**
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**		
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 Metal

	Small	Medium	Large
Recon 3 (Secondary)			
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**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**None**		
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (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**

Knee/Tibia (Without Metal) 9.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

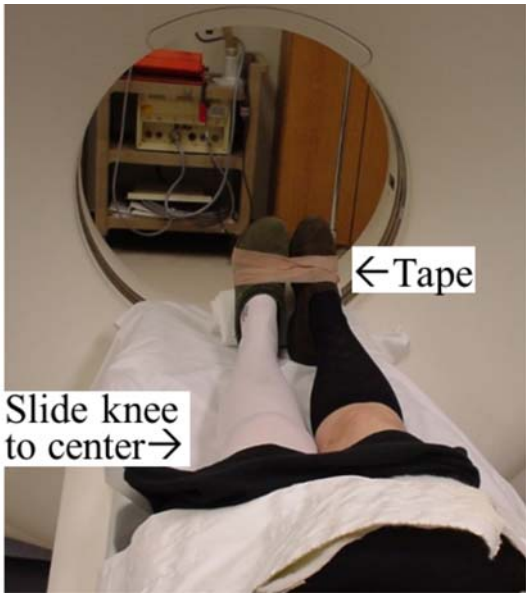
Assess the alignment and degree of displacement of fracture fragments, particularly at the articular surfaces. Also for the evaluation of arthritis, mineralized lesions, and to evaluate the bone surrounding metallic implants.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine.
- Slide patient over so that knee being imaged is centered in scanner.
- Tapping the toes together helps 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 @ 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

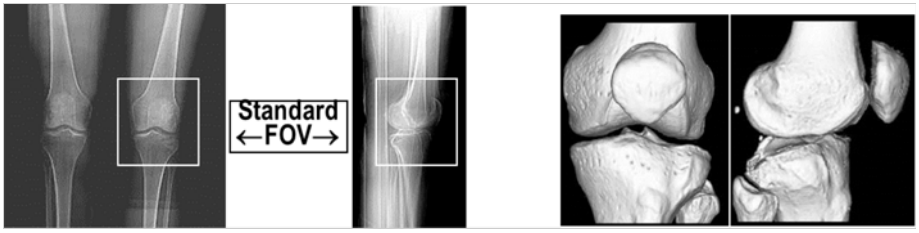
25 cm

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)

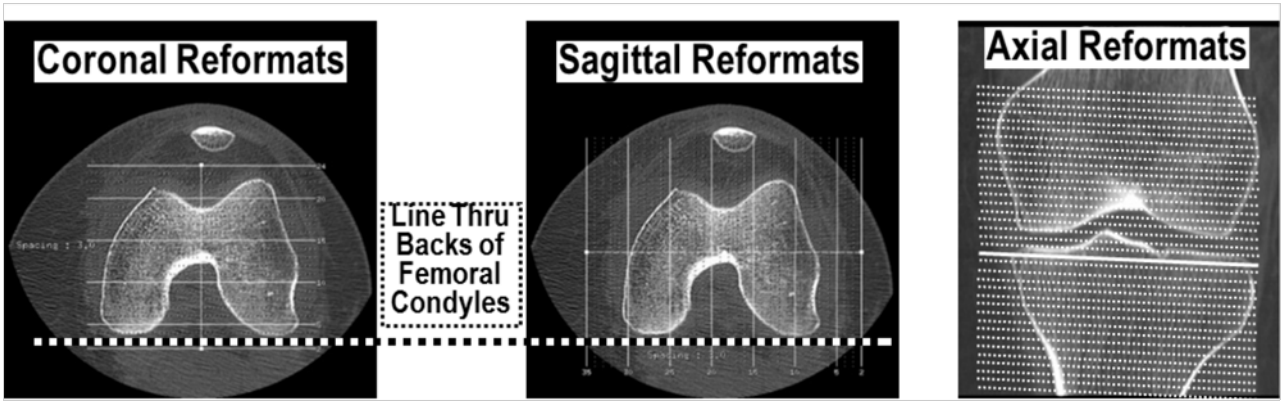


Knee FOV

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 Recon	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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	**0.531**
Speed (mm/rot)	**21.20**
Rotation Time (s)	**1**
kV	**120**
AEC type	**Manual mA**
mA Range	**(40-335)**
Manual mA	**210.0**
Noise Index	**15.5**
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 Metal
Recon 3 (Secondary)	
DFOV	**25**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

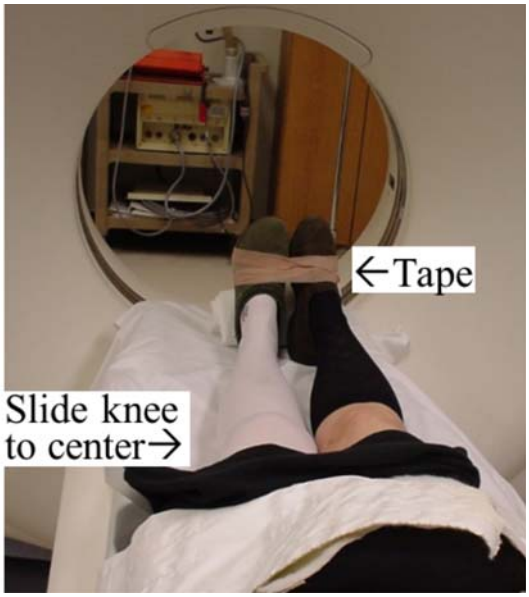
Assess the alignment and degree of displacement of fracture fragments, particularly at the articular surfaces. Also for the evaluation of arthritis, mineralized lesions, and to evaluate the bone surrounding metallic implants.

Oral Contrast

None

Pre-Scan Instructions

- Patient supine.
- Slide patient over so that knee being imaged is centered in scanner.
- Tapping the toes together helps 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 @ 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

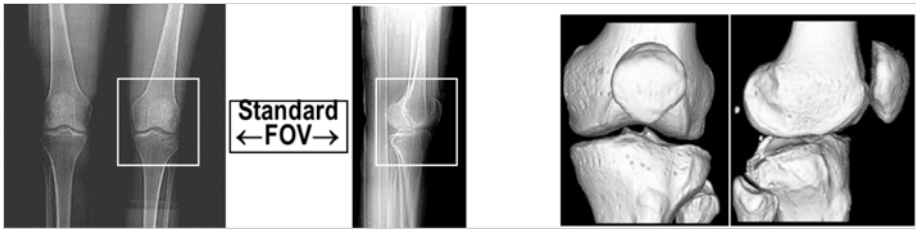
25 cm

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)

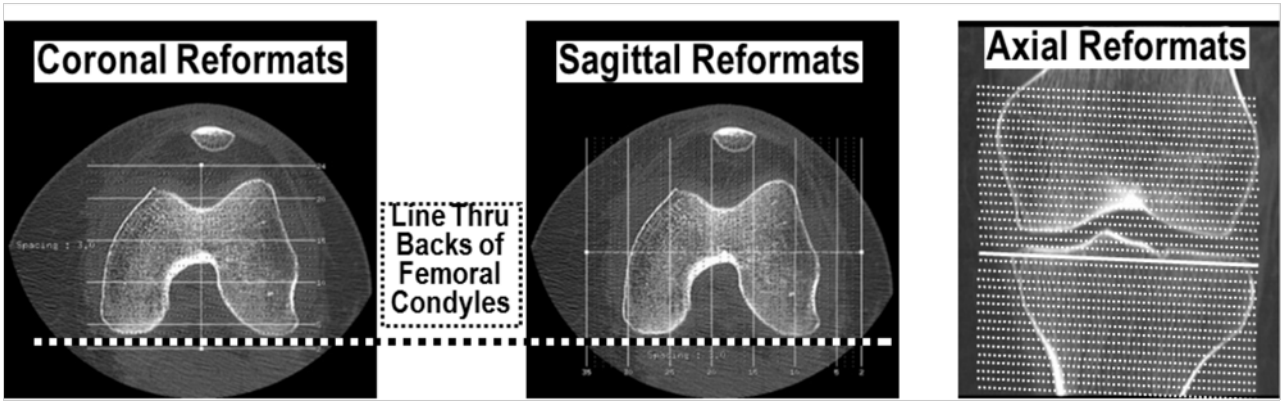


Knee FOV

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 Recon	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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	**0.531**
Speed (mm/rot)	**21.20**
Rotation Time (s)	**1**
kV	**140**
AEC type	**Manual mA**
mA Range	**(70-700)**
Manual mA	**360.0**
Noise Index	**9.5**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Series 2, Recons

	With 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 Metal
Recon 3 (Secondary)	
DFOV	**25**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (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**

Ankle/Foot/Distal Tibia (Without Metal) 9.1

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

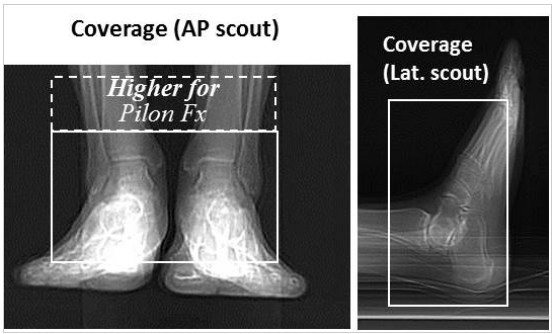
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

Scan Description

- Series 1 - PA and lateral scout
  - Coverage (see images)



Ankle coverage

- Series 2 - CT Ankle
  - Coverage for Ankle/Foot/Distal Tibia:
  - From above syndesmosis (Tib/fib Joint)(Higher for pilon Fractures as noted in image.)
  - To below calcaneus

Reformat Instructions

Use the Bone Window unless specified to use STD. Ankle/Foot/Distal Tibia Ankle/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

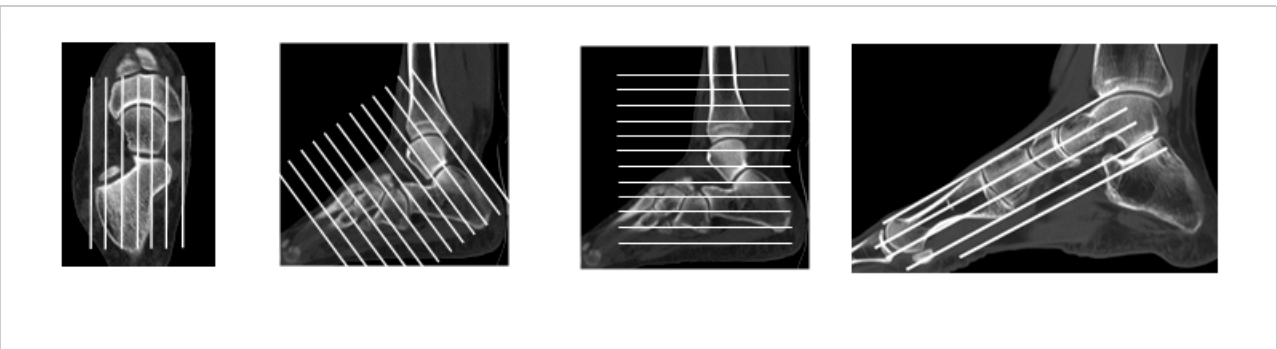
Three different looks at an ankle joint

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



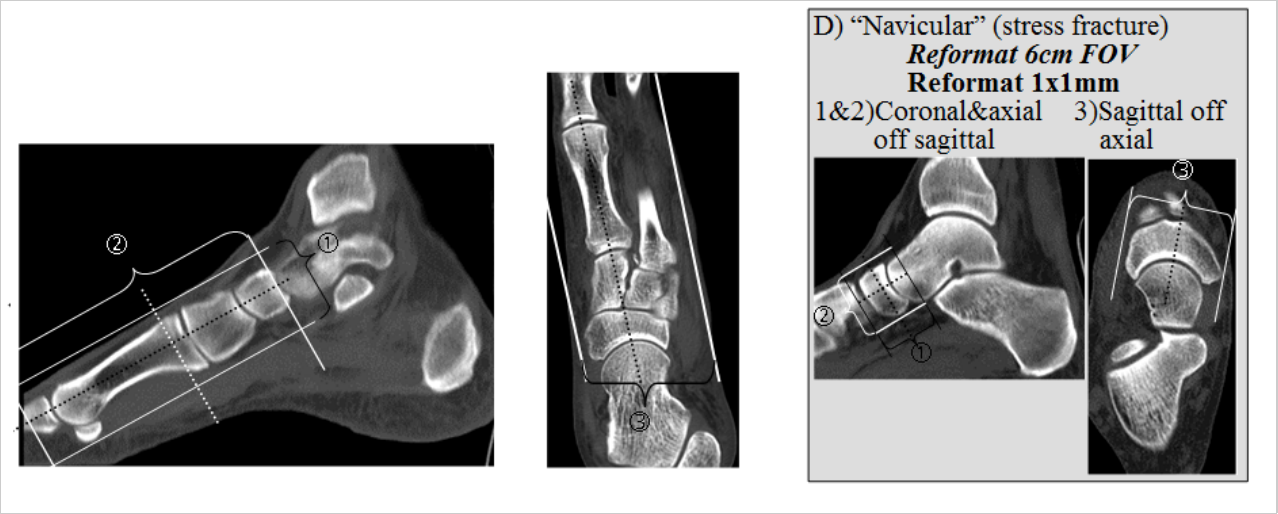
Four different reformats of the mid foot

Forefoot/Midfoot (centered on Lisfranc's Joint) Appropriate for:

- Forefoot fractures (Lisfranc dislocation, metatarsals)

ALL PLANES RELATIVE TO 1ST METATARSAL (May have to oblique reference image to see 1st MT) Picture descriptions from left to right:

- Axial or long axis- Off a sagittal, 3x1.5mm
- Short axis- Off a sagittal
- Sagittal- Off an axial, 3x1.5mm



Three different looks at the forefoot

- **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 Recon	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 Recon	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 Recon	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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	0.531
Speed (mm/rot)	21.20
Rotation Time (s)	1
kV	120
AEC type	Manual mA
mA Range	(40-335)
Manual mA	210.0
Noise Index	15.5
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 Metal
Recon 3 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

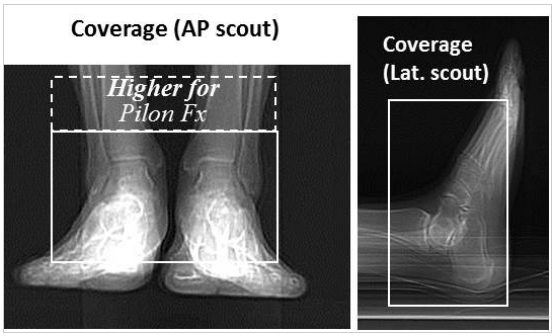
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

Scan Description

- Series 1 - PA and lateral scout
  - Coverage (see images)



Ankle coverage

- Series 2 - CT Ankle
  - Coverage for Ankle/Foot/Distal Tibia:
  - From above syndesmosis (Tib/fib Joint)(Higher for pilon Fractures as noted in image.)
  - To below calcaneus

Reformat Instructions

Use the Bone Window unless specified to use STD. Ankle/Foot/Distal Tibia Ankle/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

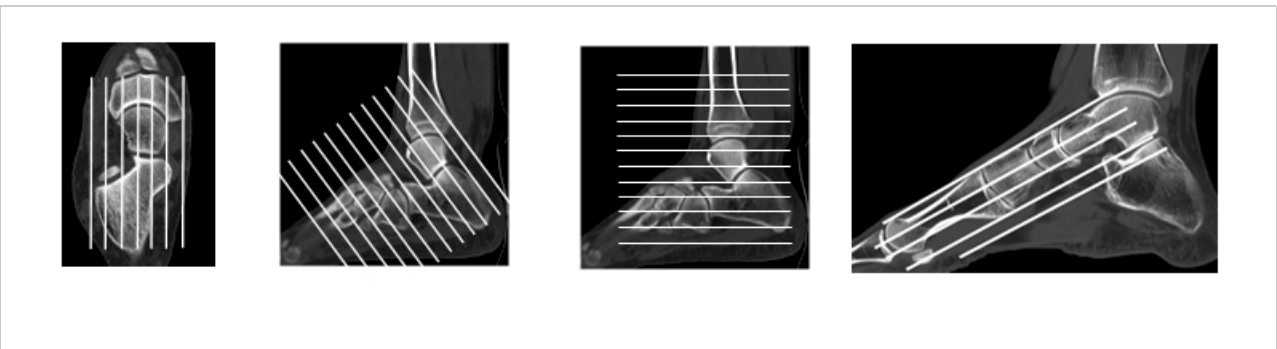
Three different looks at an ankle joint

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



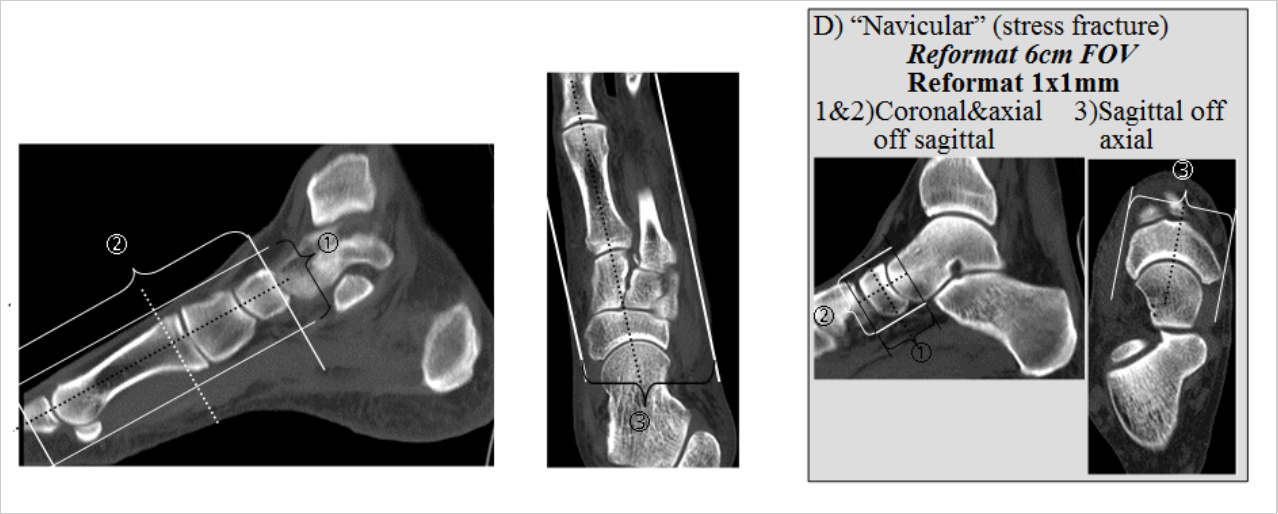
Four different reformats of the mid foot

Forefoot/Midfoot (centered on Lisfranc's Joint) Appropriate for:

- Forefoot fractures (Lisfranc dislocation, metatarsals)

ALL PLANES RELATIVE TO 1ST METATARSAL (May have to oblique reference image to see 1st MT) Picture descriptions from left to right:

- Axial or long axis- Off a sagittal, 3x1.5mm
- Short axis- Off a sagittal
- Sagittal- Off an axial, 3x1.5mm



Three different looks at the forefoot

- **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 Recon	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 Recon	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 Recon	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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	0.531
Speed (mm/rot)	21.20
Rotation Time (s)	1
kV	140
AEC type	Manual mA
mA Range	(70-700)
Manual mA	360.0
Noise Index	9.5
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 Metal
Recon 3 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (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**

Femoral Anteversion/Lower extremity rotational study 9.8/9.9/9.10

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 – CT Femoral Anteversion
  - Scan ankles ONLY if Tibias are clinically requested
  - Acquire 3 small slabs covering bilateral hips, knees, and ankles
    - Just above femoral heads through lesser trochanters
    - From the distal femoral metaphysis through tops of tibias
    - 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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-250)**	**(30-310)**	**(35-390)**
Manual mA	**120.0**	**150.0**	**230.0**
Noise Index	**15.5**	**20.0**	**25.0**
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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-80)**	**(10-100)**	**(10-130)**
Manual mA	**40.0**	**50.0**	**80.0**
Noise Index	**13.5**	**17.5**	**22.0**
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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-80)**	**(10-100)**	**(10-130)**
Manual mA	**40.0**	**50.0**	**80.0**
Noise Index	**13.5**	**17.5**	**22.0**
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**

Shoulder/Humerus (With or Without Metal) 4.1/4.2/4.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 3 mL/sec

Rate: As appropriate for IV access (up to 3mL/sec)

Delay: 90sec

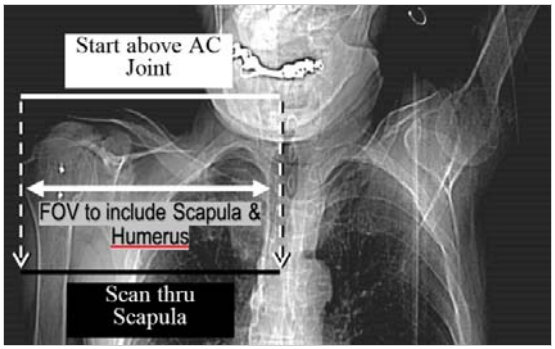
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

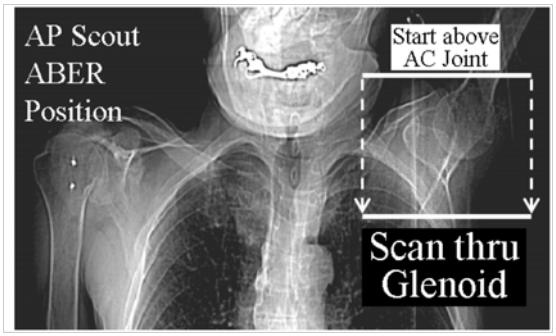
24 cm

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 the scapula and proximal humerus. Scan coverage should resemble the image below.



Shoulder Scan Range (routine)

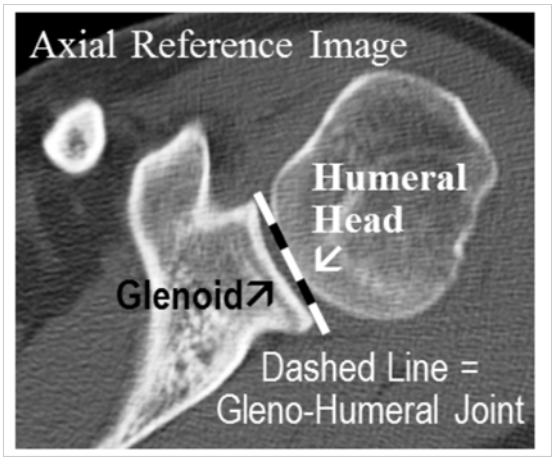


ABER Position

Reformat Instructions

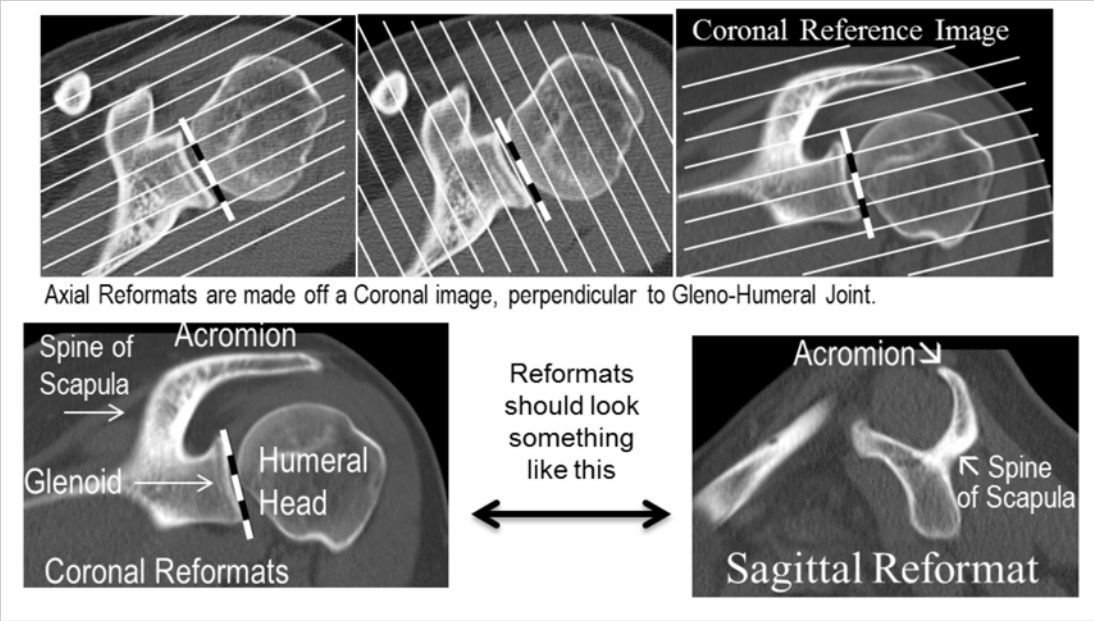
Non-Arthrogram:

- 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

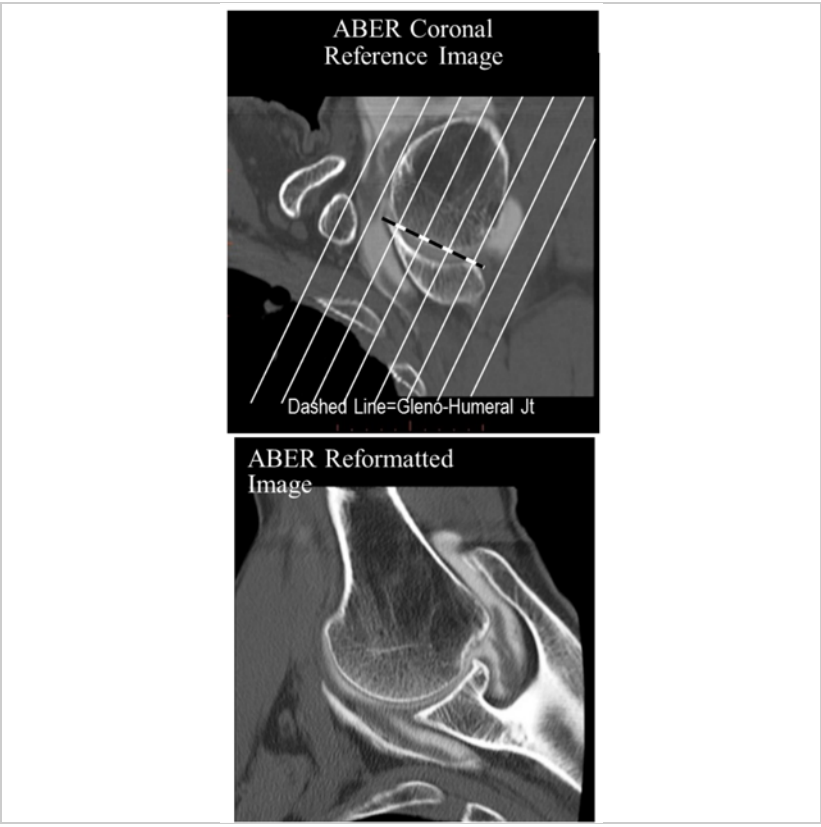
- Coronal & Sagittal Reformats are made off an Axial reference image, perpendicular & parallel to the Gleno-Humeral Joint.



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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.6**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-410)**	**(60-640)**	**(60-620)**
Manual mA	**210.0**	**320.0**	**380.0**
Noise Index	**14.5**	**22.5**	**32.5**
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**	**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	**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 Metal

	Small	Medium	Large
Recon 3 (Secondary)			
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**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (Secondary)			
DFOV	**24**	**24**	**24**
Recon Type	**Standard**	**Standard**	**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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.6**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-410)**	**(60-640)**	**(60-620)**
Manual mA	**210.0**	**320.0**	**380.0**
Noise Index	**14.5**	**22.5**	**32.5**
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 Metal	Small	Medium	Large
Recon 3 (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**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR			
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 4 (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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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

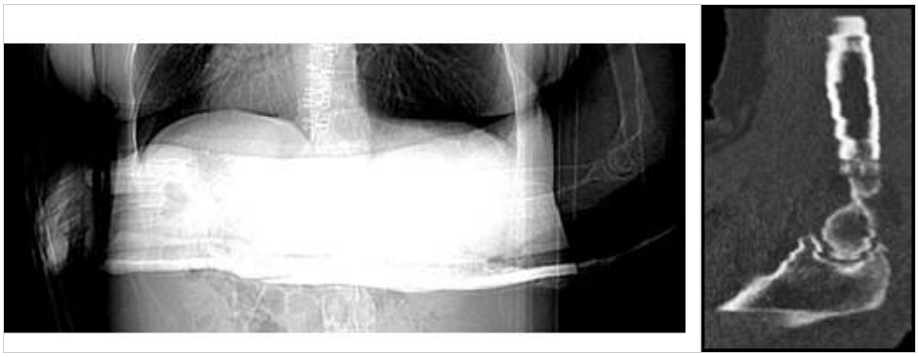
Pre-Scan Instructions

<u>Elbow CT Scanning Techniques</u>

- The elbow is the most difficult joint to scan.
  - It is usually difficult to optimally position the elbow.
    - Particularly when the elbow is in a cast.
  - It often requires 6 sets of reformats.
    - 3 relative to the distal humerus.
    - 3 relative to the proximal forearm.
- Extra care should be taken when positioning elbows.
  - The better the elbow is positioned in the scanner:
    - The better the source data will be, and
    - The easier it will be to make the reformats

<u>Keys to Optimally Positioning the Elbow</u>

- The arm should be raised above the patient's head.
  - This is usually best achieved with the patient laying supine on the table.
  - Sometimes creative positioning (prone, decubitus) will be necessary.
- This is crucial because:
  - It puts the elbow near the center of the scanner (allowing use of "Small SFOV").
  - It avoids radiation to the head and torso.
    - 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!
- 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)

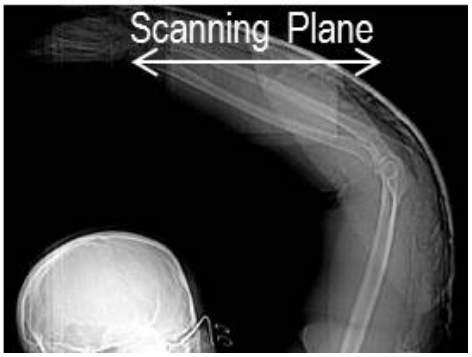


Effects of beam hardening and respiratory motion

- 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.
- If the patient's elbow is in a cast:
  - The degree of elbow extension will be limited by the cast.
    - Even with 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.

Try to avoid this positioning →

This positioning is better →



IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 MG/ML injection @ 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

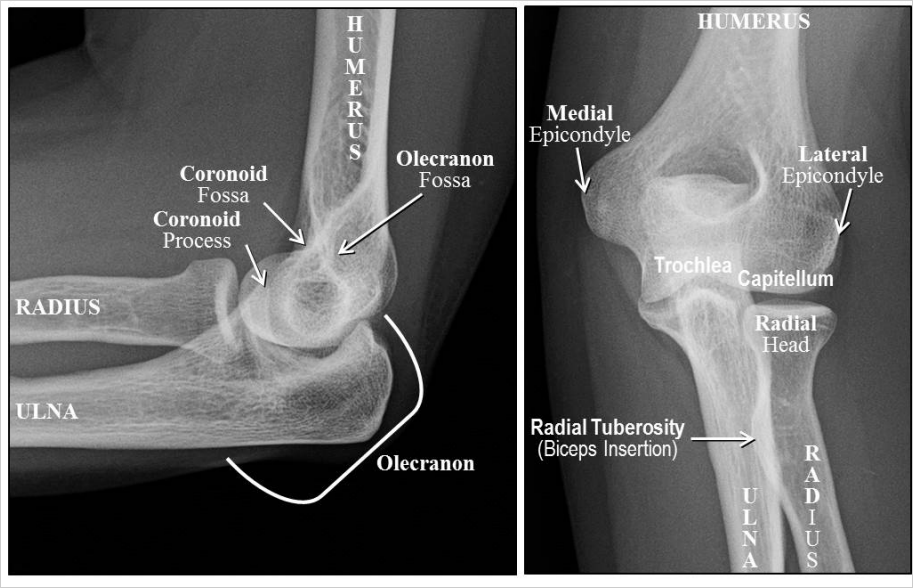
Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - CT Elbow cover distal humerus through proximal forearm

Reformat Instructions

Elbow Anatomy:

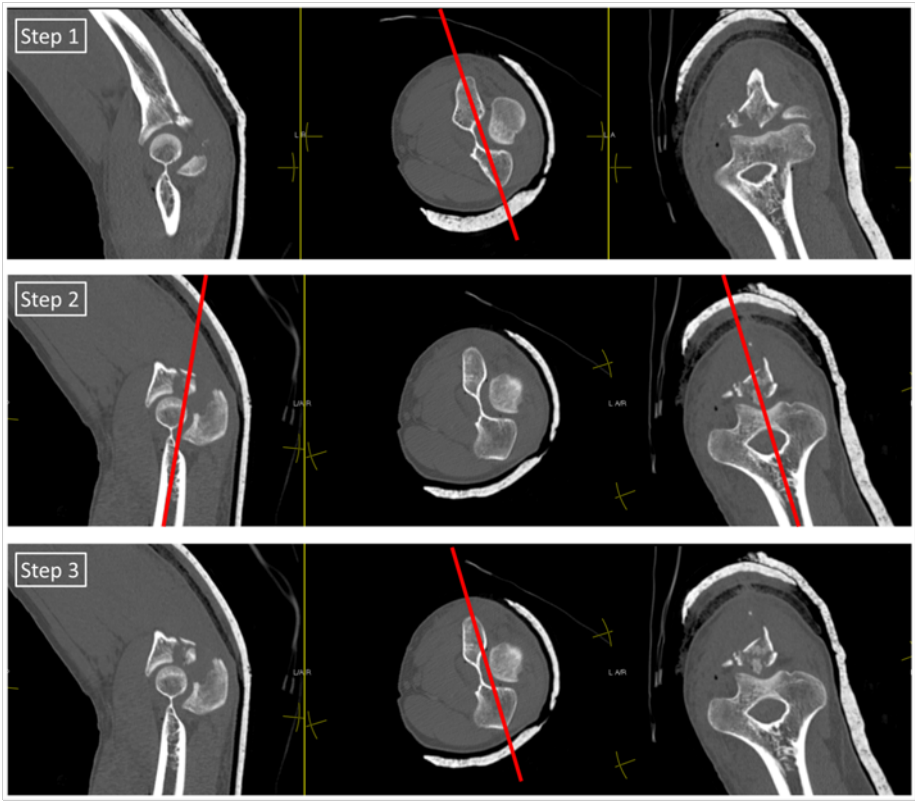
- Lateral and AP views respectively



Elbow Anatomy

Reformatting: 3x1.5 mm standard All While Using the Multi-Oblique Reformatting Tool:

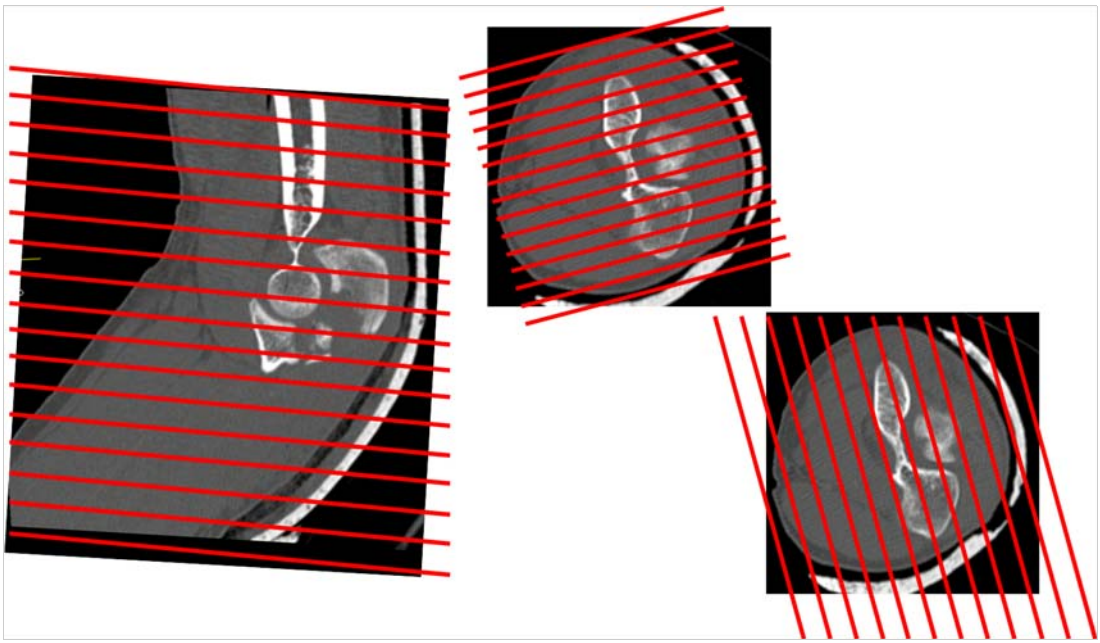
1. Using the axial images, align the coronal plane so that it is parallel to the transepicondylar axis of the distal humerus (diagram below)
2. Align both the sagittal and coronal planes to be parallel to the shaft of the distal humerus
3. Again use the axial images to fine tune the coronal plane to 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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	**0.531**
Speed (mm/rot)	**21.20**
Rotation Time (s)	**1**
kV	**120**
AEC type	**Manual mA**
mA Range	**(40-335)**
Manual mA	**210.0**
Noise Index	**15.5**
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**

Recon 3 (Secondary)	If Metal
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (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**

Elbow/Forearm (With Metal) 4.7

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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

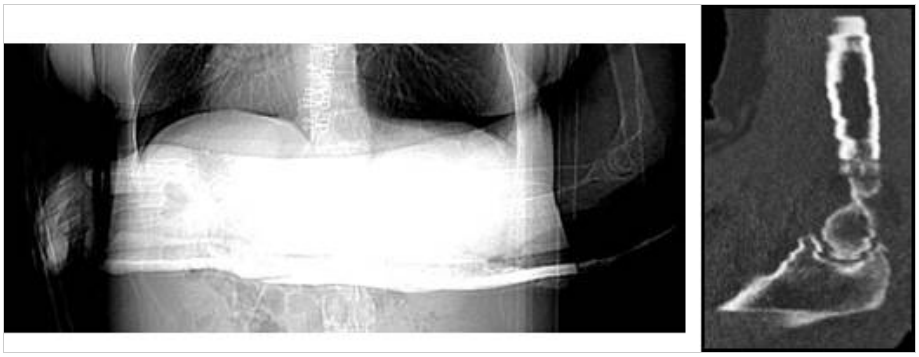
Pre-Scan Instructions

<u>Elbow CT Scanning Techniques</u>

- The elbow is the most difficult joint to scan.
  - It is usually difficult to optimally position the elbow.
    - Particularly when the elbow is in a cast.
  - It often requires 6 sets of reformats.
    - 3 relative to the distal humerus.
    - 3 relative to the proximal forearm.
- Extra care should be taken when positioning elbows.
  - The better the elbow is positioned in the scanner:
    - The better the source data will be, and
    - The easier it will be to make the reformats

<u>Keys to Optimally Positioning the Elbow</u>

- The arm should be raised above the patient's head.
  - This is usually best achieved with the patient laying supine on the table.
  - Sometimes creative positioning (prone, decubitus) will be necessary.
- This is crucial because:
  - It puts the elbow near the center of the scanner (allowing use of "Small SFOV").
  - It avoids radiation to the head and torso.
    - 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!
- 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)

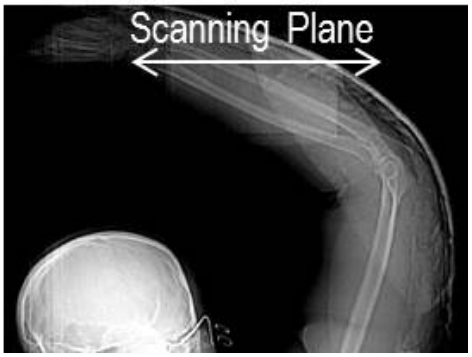


Effects of beam hardening and respiratory motion

- 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.
- If the patient's elbow is in a cast:
  - The degree of elbow extension will be limited by the cast.
    - Even with 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.

Try to avoid this positioning →

This positioning is better →



IV Contrast Parameters

Medrad™ P3T Abdomen protocol.

Iohexol (Omnipaque) 300 MG/ML injection @ 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

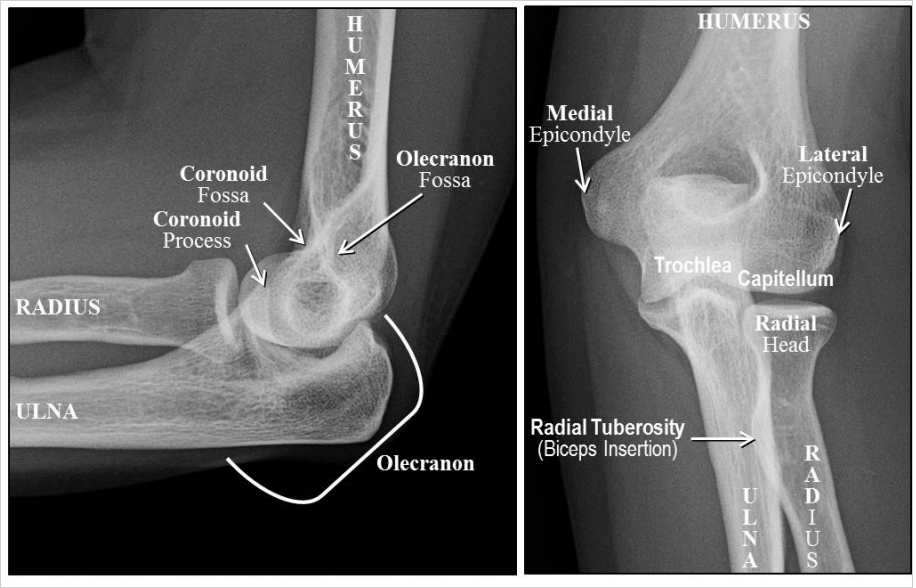
Scan Description

- Series 1 - PA and lateral scouts
- Series 2 - CT Elbow cover distal humerus through proximal forearm

Reformat Instructions

Elbow Anatomy:

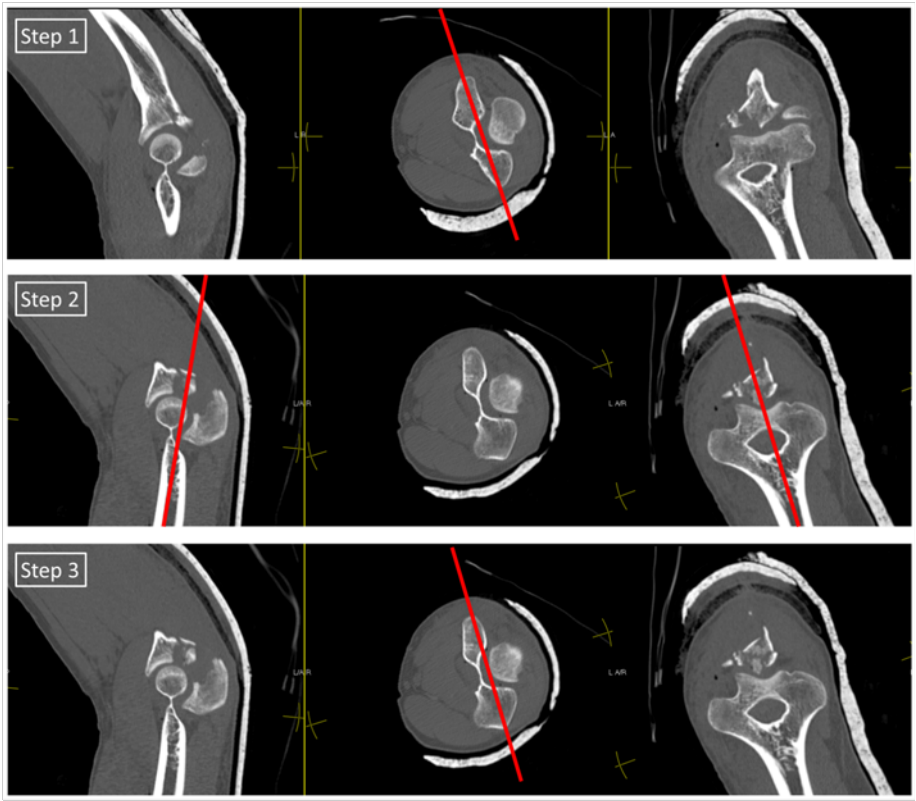
- Lateral and AP views respectively



Elbow Anatomy

Reformatting: 3x1.5 mm standard All While Using the Multi-Oblique Reformatting Tool:

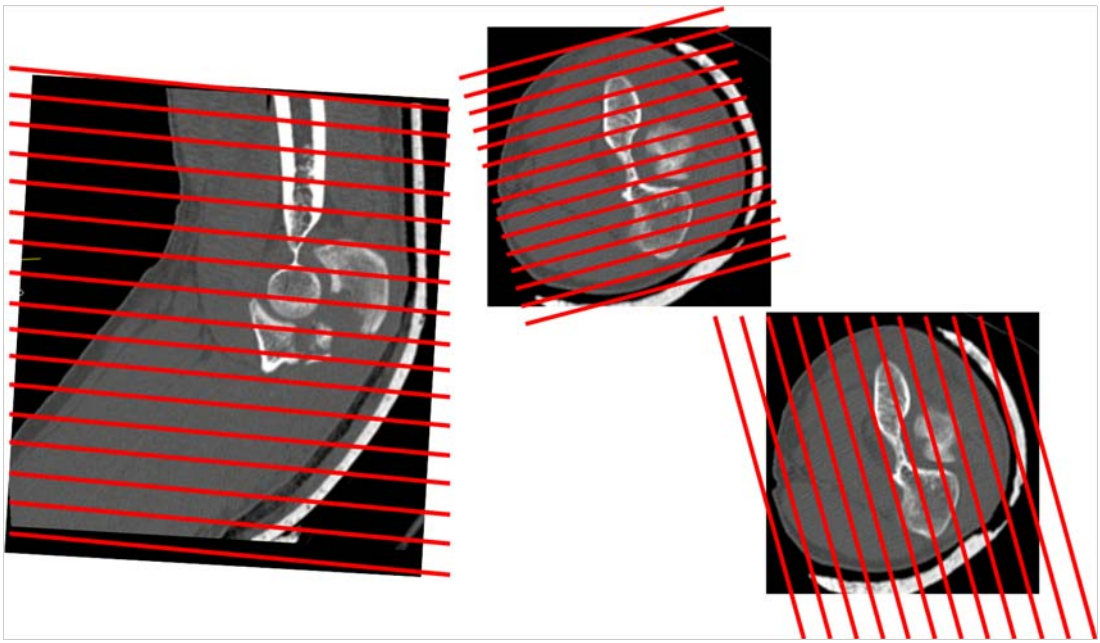
1. Using the axial images, align the coronal plane so that it is parallel to the transepicondylar axis of the distal humerus (diagram below)
2. Align both the sagittal and coronal planes to be parallel to the shaft of the distal humerus
3. Again use the axial images to fine tune the coronal plane to 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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	**0.531**
Speed (mm/rot)	**21.20**
Rotation Time (s)	**1**
kV	**140**
AEC type	**Manual mA**
mA Range	**(70-700)**
Manual mA	**360.0**
Noise Index	**9.5**
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	**80% / 40% / High**
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**

Recon 3 (Secondary)	
DFOV	**22**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (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**

Wrist (Without Metal) 4.8

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 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

(If DRUJ is ordered for both wrists, bill for 2 wrists)

Reformat Instructions

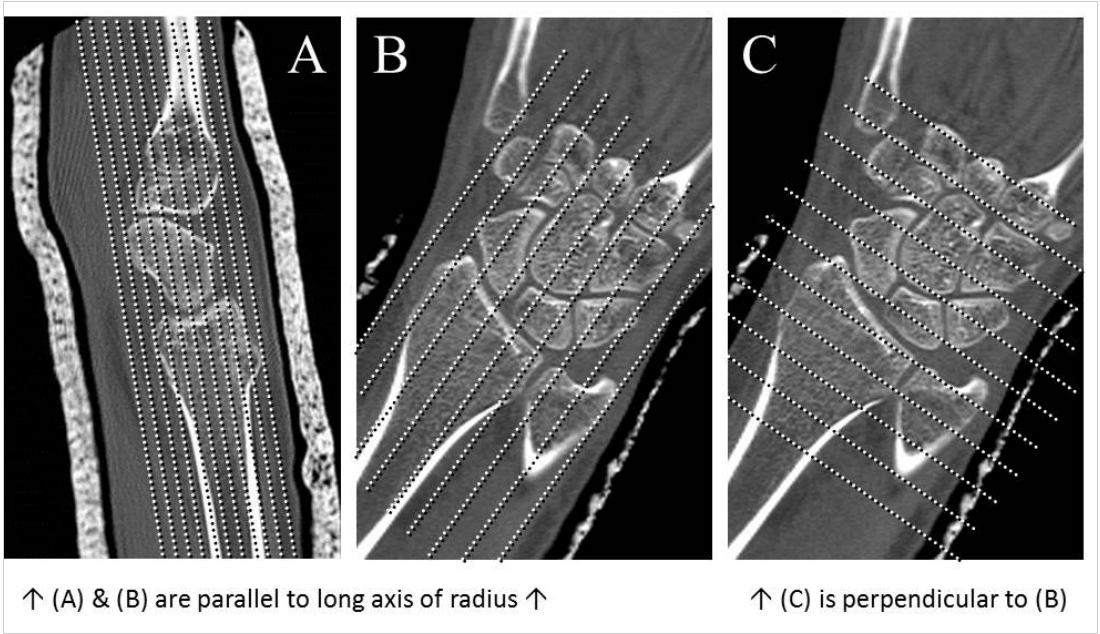
- Use the Bone Recon for the CO/SA/AX and the STD Recon for the additional AX only.
- In nearly all cases, wrist CTs should be reformatted in at least the basic 3 orthogonal planes – A, B, & C. In addition, E, an oblique axial reformat parallel to the distal articular surface of the radius should be performed.
- (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 – 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.

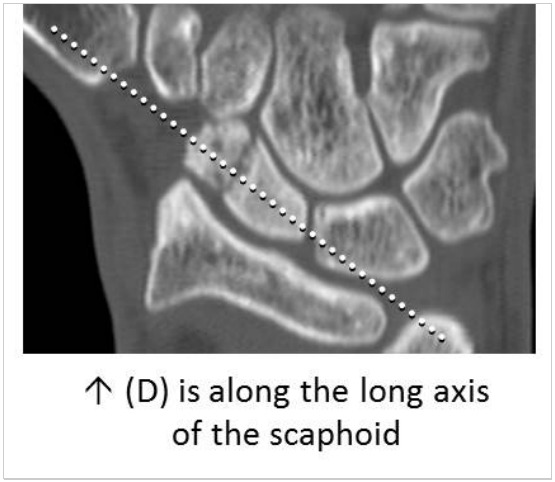
In order from left:

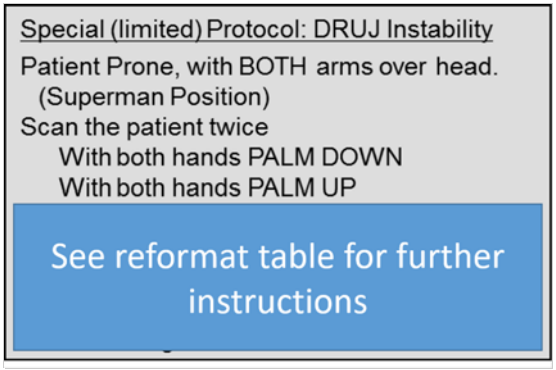
- Coronal with a standard of 2x1mm, made off a true sagittal
- Sagittal with a standard of 3x1.5mm, made off a true coronal
- Axial with a standard of 3x1.5mm, made of a true coronal



Reformats A,B and C

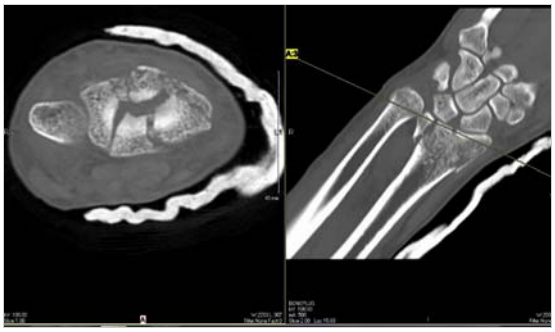
- The next photo, D, is of an oblique sagittal 1x1mm made off a true coronal





Special instructions

Reformats A,B and C



(E) Wrist reformats

- For E, 1x.5mm standard. Oblique axial reformat parallel to the distal articular surface of the radius.

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 Recon	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 Recon	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 Recon	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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

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	0.531
Speed (mm/rot)	21.20
Rotation Time (s)	0.9
kV	100
AEC type	Manual mA
mA Range	(35-290)
Manual mA	150.0
Noise Index	14.0
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 Metal
Recon 3 (Secondary)	
DFOV	**12**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (Secondary)	
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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 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

(If DRUJ is ordered for both wrists, bill for 2 wrists)

Reformat Instructions

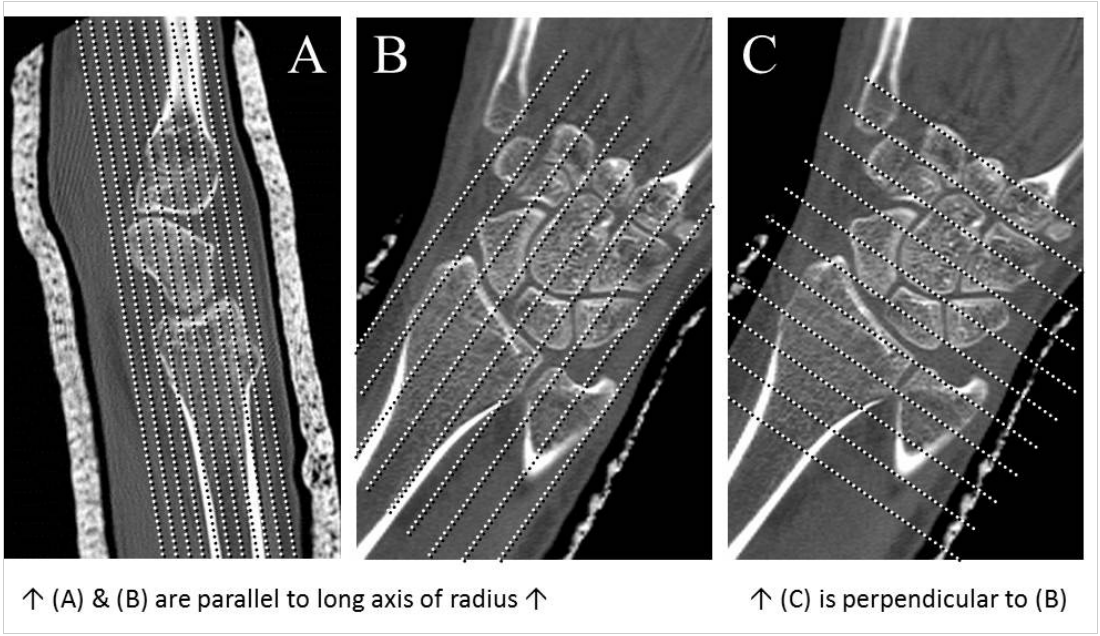
- Use the Bone Recon for the CO/SA/AX and the STD Recon for the additional AX only.
- In nearly all cases, wrist CTs should be reformatted in at least the basic 3 orthogonal planes – A, B, & C. In addition, E, an oblique axial reformat parallel to the distal articular surface of the radius should be performed.
- (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 – 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.

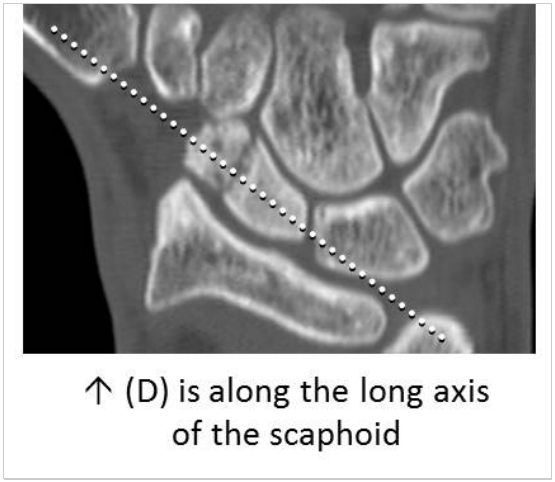
In order from left:

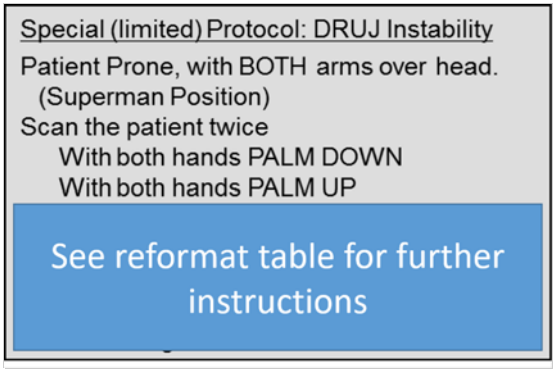
- Coronal with a standard of 2x1mm, made off a true sagittal
- Sagittal with a standard of 3x1.5mm, made off a true coronal
- Axial with a standard of 3x1.5mm, made of a true coronal



Reformats A,B and C

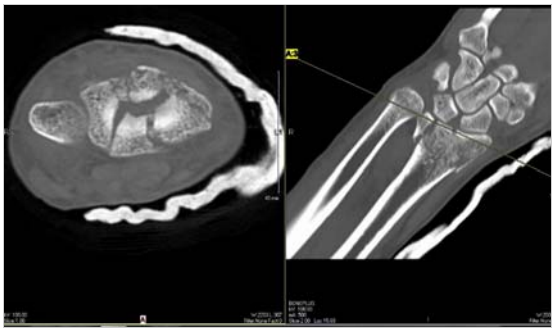
- The next photo, D, is of an oblique sagittal 1x1mm made off a true coronal





Special instructions

Reformats A,B and C



(E) Wrist reformats

- For E, 1x.5mm standard. Oblique axial reformat parallel to the distal articular surface of the radius.

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 Recon	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 Recon	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 Recon	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 Recon	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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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

Scout 1 kV	140
Scout 1 mA	10
Scout 1 Angle	180
Scout 2 kV	140
Scout 2 mA	10
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	0.531
Speed (mm/rot)	21.20
Rotation Time (s)	1
kV	140
AEC type	Manual mA
mA Range	(60-700)
Manual mA	290.0
Noise Index	8.5
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 Metal
Recon 3 (Secondary)	
DFOV	**12**
Recon Type	**Bone Plus**
WW/WL	**2500/350**
Recon Option	**Plus**
Recon Option	**IQ Enhance**
Recon Option	**MARS On**
ASiR/ASiR256/DLIR	
Slice Thickness (mm)	**0.625**
Interval (mm)	**0.312**
Recon 4 (Secondary)	
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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 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.
    - Clavicle
      - FOV should extend 5 cm laterally past the sternum and extend laterally past the AC joint.
    - AC Joint
      - FOV should be mid clavicle to past the AC joint laterally.
    - 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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.6**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-410)**	**(60-640)**	**(60-620)**
Manual mA	**210.0**	**320.0**	**380.0**
Noise Index	**14.5**	**22.5**	**32.5**
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**	**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	**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 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**
Recon Option	**MARS On**	**MARS On**	**MARS On**
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**	**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	**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**

Soft Tissue Extremity with IV Contrast 9.24/9.25/9.26

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

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 @ 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 Recon	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 (ALI_Store) PACS, except the thins (including thin MAR recons) send to (ALI_Source) Thin PACS. 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	80	100	120
Scout 1 mA	10	10	10
Scout 1 Angle	180	180	180
Scout 2 kV	80	100	120
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	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	0.984	0.984	0.984
Speed (mm/rot)	39.40	39.40	39.40
Rotation Time (s)	0.5	0.5	0.5
kV	80	100	120
AEC type	smart mA	smart mA	smart mA
mA Range	(120-675)	(110-770)	(120-800)
Manual mA	390.0	420.0	590.0
Noise Index	14.5	17.5	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	**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% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (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**
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 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**
Recon Option	**MARS On**	**MARS On**	**MARS On**
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**
Recon 2 (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)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

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

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

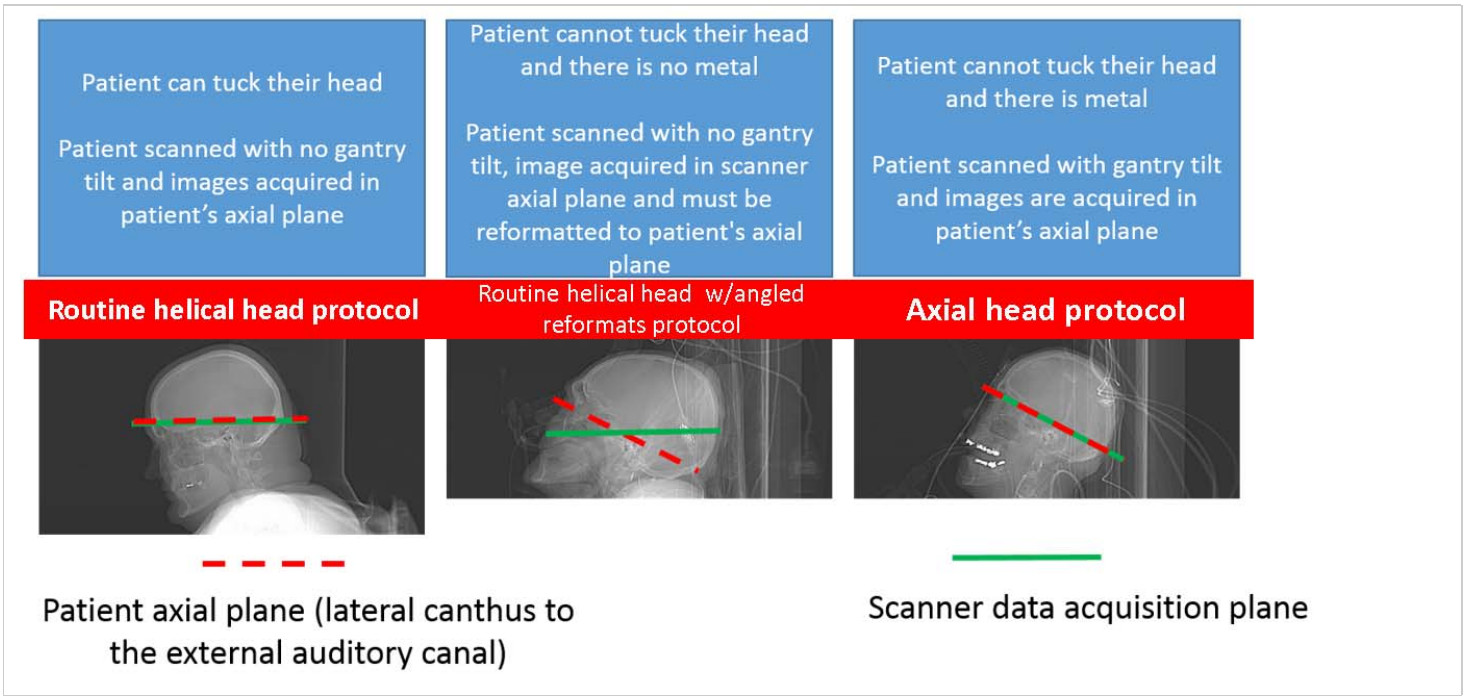
Indication

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

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

- Supine, PA and lateral scouts, no gantry angle
- 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).
- 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.

IV Contrast Parameters

Adults:

120 mL Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec (1 minute)

Begin scanning 5 minutes after end of injection (6 minutes from start of injection)

Peds:

0.7 mL/pound (1.5 mL/kg) of Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Begin scanning 5 minutes after end of injection.

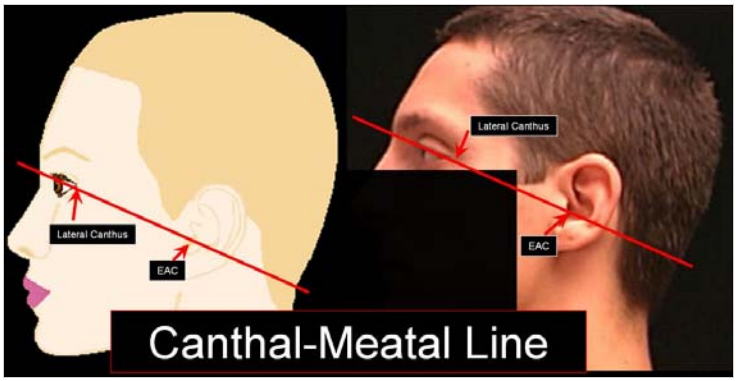
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

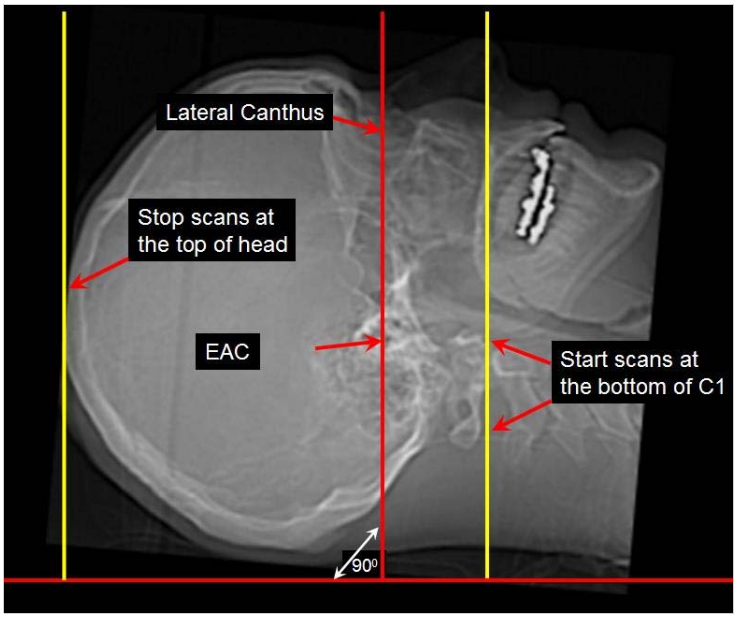
Preferred 22 cm

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, turn on Recon 4 (1.25 mm bone) in order to make the ped NAT trauma reformats (described in the table below)
  - If head w/c only is ordered, skip the head w/o series and use the next series head w/c.



Canthal-Meatal Line



scan range for brain

Reformat Instructions

For routine head imaging (adult and peds), see the general table below.

For NAT and Pediatric Trauma: Perform a 3D.

Reformats

Name (Adult)	Source Recon	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 Recon	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 Recon	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 (ALI_Store) PACS. 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:

- Child: (3 – 6 years)
- Infant: (0 – 3 years)

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
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**
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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
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**
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**

Brain - Helical Scan with Angled Axial Reformations 1.2/11.3/11.4

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

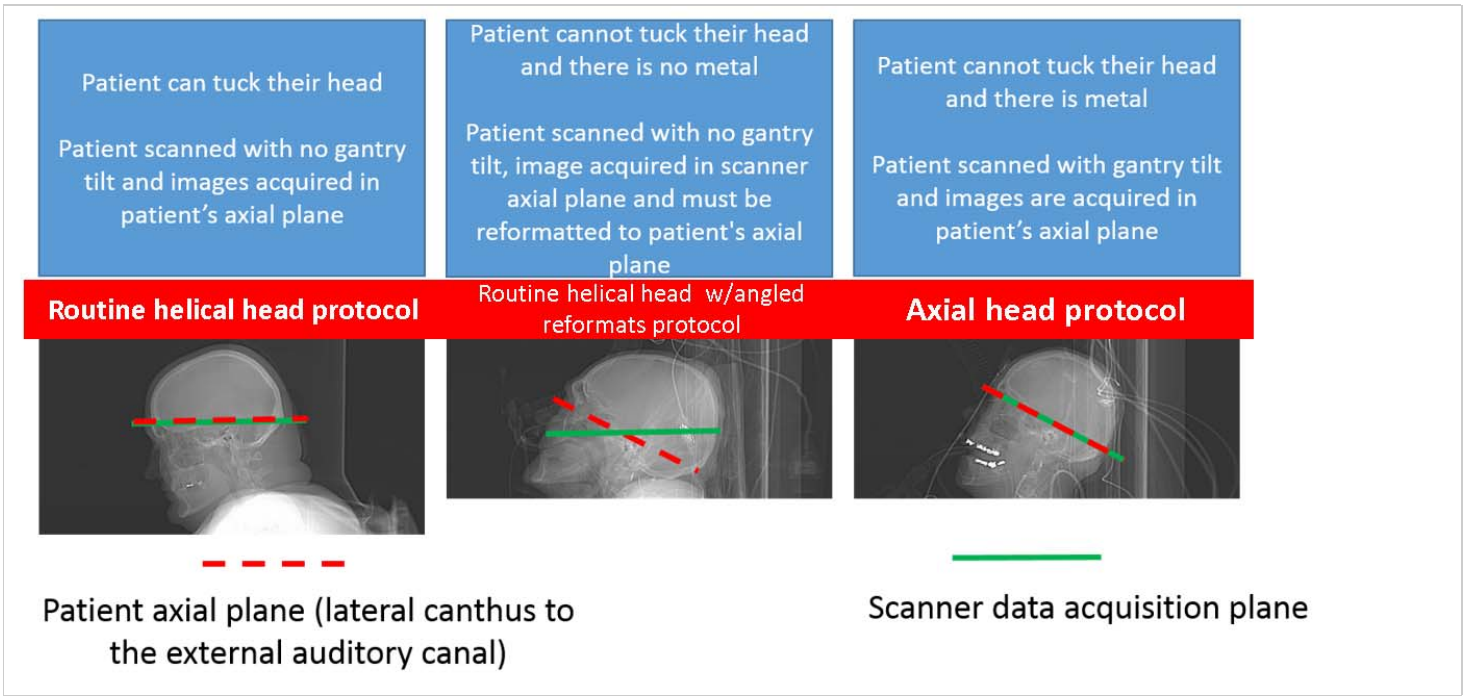
Indication

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

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).
- Supine, PA and lateral scouts, no gantry angle
- 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.

IV Contrast Parameters

Adults:

120 mL Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec (1 minute)

Begin scanning 5 minutes after end of injection (6 minutes from start of injection)

Peds:

0.7 mL/pound (1.5 mL/kg) of Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Begin scanning 5 minutes after end of 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

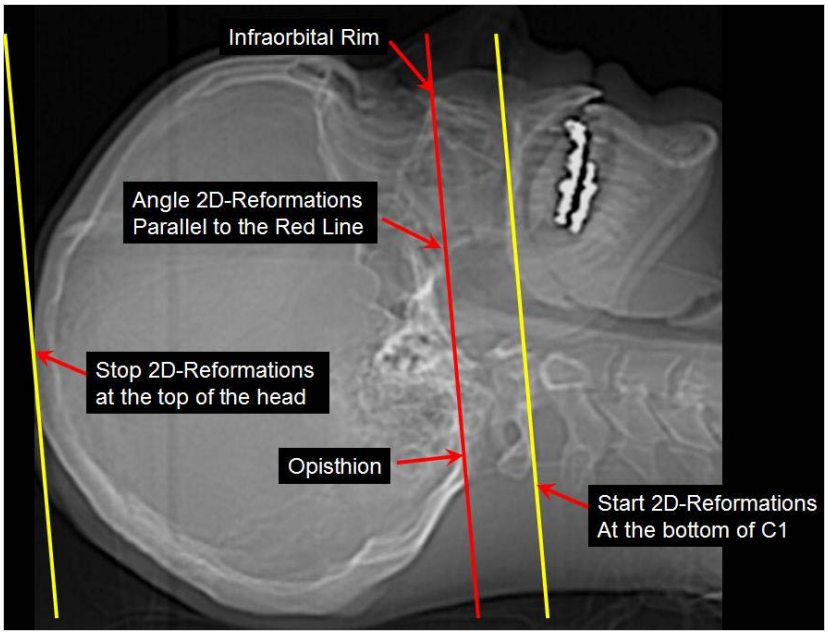
Preferred 22 cm

Scan Description

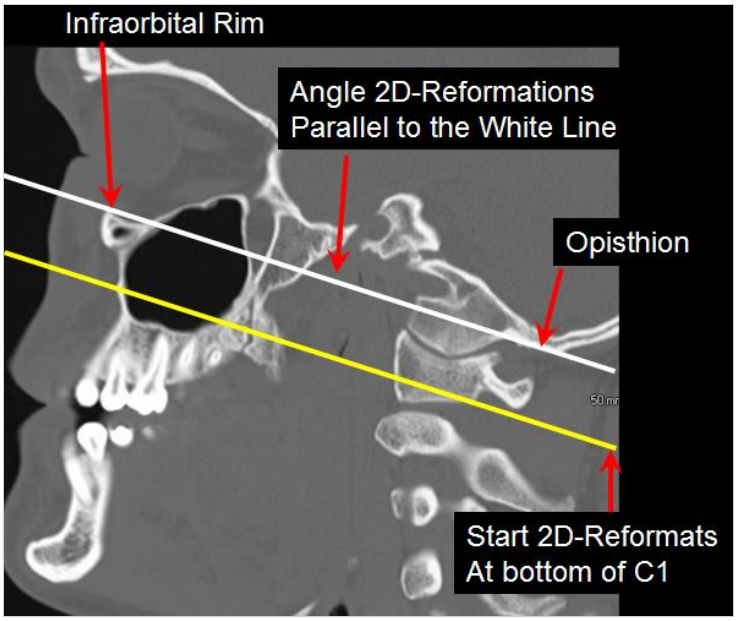
- Series 1 - Scouts PA and Lateral
- Series 2 – Start the scans at C1 and scan through the top of the head

Reformat Instructions

Obtain 2D-reformations parallel to a line connecting the infraorbital rim with the opisthion (see below). Use a sagittal view on Imageworks slightly off midline to choose proper angle of reconstruction. Start reformations at the bottom of C1 and go to the top of the head using a 20 cm DFOV.



Helical Scan with Angled Axial Reformations



Helical

Reformats

Name (Adult)	Source Recon	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 Recon	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 (ALI_Store) PACS. 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:

- Child: (3 – 6 years)
- Infant: (0 – 3 years)

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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**
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)	**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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	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**
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)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

Brain (Axial Mode) 1.3/11.5/11.6

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

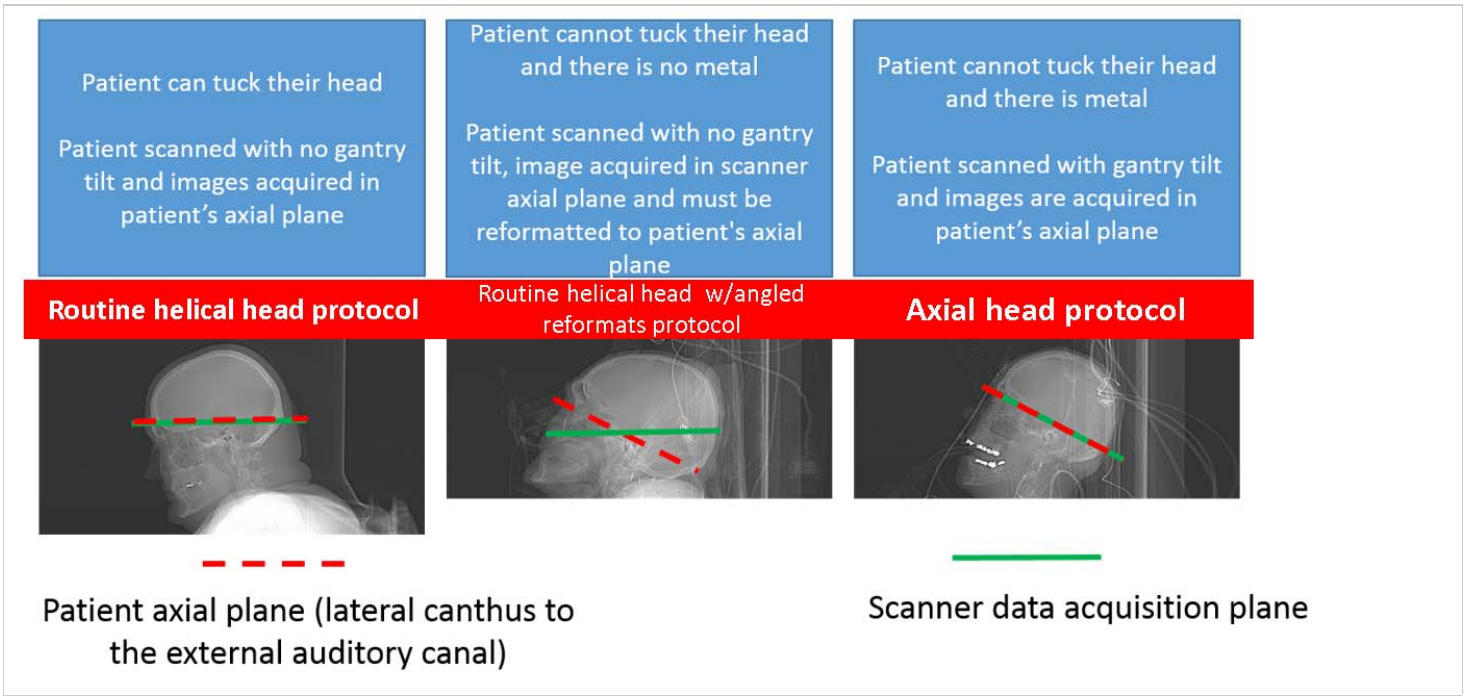
Indication

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

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

- Supine, PA and lateral scouts
- 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). This mode can also be used in unstable patients in the ED when the CT scan time must be expedited.
- Patient Positioning: Using the lateral scout image, angle the gantry so that it is parallel to a line connecting the infraorbital rim with the opisthion (see below).

IV Contrast Parameters

Adults:

120 mL Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec (1 minute)

Begin scanning 5 minutes after end of injection (6 minutes from start of injection)

Peds:

0.7 mL/pound (1.5 mL/kg) of Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Begin scanning 5 minutes after end of injection.

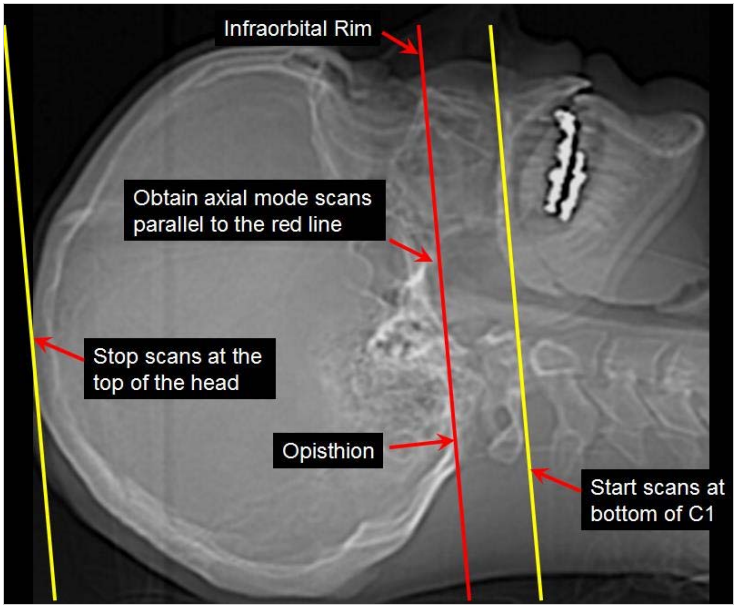
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

Field of View

Preferred 22 cm

Scan Description

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



sagittal brain

Reformat Instructions

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

Reformats

Name (Adult)	Source Recon	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 Recon	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 (ALI_Store) PACS. 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:

- Child: (3 – 6 years)
- Infant: (0 – 3 years)

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	Axial	Axial	Axial
Beam Collimation	10	10	10
Detector Rows	16.0	16.0	16.0
Detector Configuration	16x0.625	16x0.625	16x0.625
Scan FOV	Head	Small Head	Small Head
Pitch	1	1	1
Speed (mm/rot)	10.00	10.00	10.00
Rotation Time (s)	0.6	0.6	0.6
kV	120	100	80
AEC type	Manual mA	Manual mA	Manual mA
mA Range	(220-750)	(220-750)	(220-675)
Manual mA	530.0	530.0	530.0
Noise Index	6.5	6.8	6.8
Slice Thickness (mm)	1.25	1.25	1.25
Interval (mm)	10	10	10

Series 2, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**N/A**	**N/A**	**N/A**
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)	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**N/A**	**N/A**	**N/A**

Series 3, Scan Phase

	Adult	Child	Infant
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**10**	**10**	**10**
Detector Rows	**16.0**	**16.0**	**16.0**
Detector Configuration	**16x0.625**	**16x0.625**	**16x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**10.00**	**10.00**	**10.00**
Rotation Time (s)	**0.7**	**0.7**	**0.6**
kV	**100**	**80**	**80**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(230-790)**	**(230-675)**	**(220-675)**
Manual mA	**590.0**	**590.0**	**530.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**10**	**10**	**10**

Series 3, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**N/A**	**N/A**	**N/A**
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)	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**
Recon 3 (Secondary)			
DFOV	**22**	**22**	**22**
Recon Type	**Soft**	**Soft**	**Soft**
WW/WL	**180/25**	**180/25**	**180/25**
Recon Option	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**80% / 40% / High**	**80% / 40% / High**	**80% / 40% / High**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**N/A**	**N/A**	**N/A**

Stealth - Stereotactic Head (Whole Brain Treatment Planning) 1.10/11.11/11.12

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Stereotactic guidance imaging for operating room

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine on table top, use the head holder only if patient cannot hold still.
- PA and lateral scouts
- Be sure to include the entire nose
- Have the patient shut 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.

IV Contrast Parameters

Adults:

120 mL Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec (1 minute)

Begin scanning 5 minutes after end of injection (6 minutes from start of injection)

Peds:

0.7 mL/pound (1.5 mL/kg) of Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Begin scanning 5 minutes after end of 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

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

NOTE: Assign the pediatric neuro cases to "**Read, Neuro**" **NOT** "Read, Peds"

Miscellaneous

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

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	Axial	Axial	Axial
Beam Collimation	10	10	10
Detector Rows	16.0	16	16
Detector Configuration	16x0.625	16x0.625	16x0.625
Scan FOV	Head	Head	Head
Pitch	1	1	1
Speed (mm/rot)	10.00	10.00	10.00
Rotation Time (s)	1	0.5	0.5
kV	120	120	120
AEC type	Manual mA	Manual mA	Manual mA
mA Range	(160-530)	(160-530)	(160-530)
Manual mA	250	250	250
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	Child	Infant
Recon 1 (Primary)			
DFOV	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**80/25**	**80/25**	**80/25**
Recon Option			
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

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

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

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle.
- 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:

- 120 mL Iohexol (Omnipaque) 300 MG/ML @ 3 mL/sec

Pediatrics:

- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Field of View

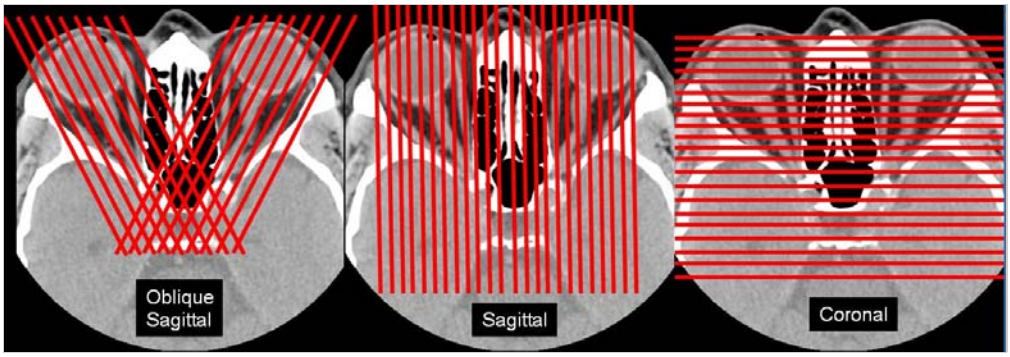
Preferred 18 cm

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-
  - (If Indicated by protocol for Contrast) Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection
  - CT Orbit With: Start the scans at the infraorbital rim and scan through the top of the orbit

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: Do 2D-reformats using both the ST AND the THIN BONE.
- If this is a “with & without” contrast study: Do not do Thin BONE contrast scan. Do 2D-reformats using the ST only from the contrast series AND also do 2 mm x 1 mm reformats using the THIN BONE from the non-contrast series.
- Do not send the 0.625 mm bone images to PACS.



Orbit

Reformats

With or Without Contrast

Name	Source Recon	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 (use the non cons for the bone reformats and the with contrast phase for the soft tissue reformats)

Name	Source Recon	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 (ALI_Store) PACS 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:

- Child: (3 – 6 years)
- Infant: (0 – 3 years)

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
DFOV	**18**	**18**	**18**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/0**	**350/20**	**350/20**
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	**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**
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**	**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**
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, Smart Prep

	Adult	Child	Infant
mA	**80**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**2**	**2**	**2**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**12**	**6**	**6**

Series 3, Scan Phase

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
DFOV	**18**	**18**	**18**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**300/0**	**350/20**	**350/20**
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	**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**
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**	**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**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

Facial Trauma - Routine 2.5/12.9/12.10

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Facial Trauma / Reconstruction, Maxillofacial surgery follow-up

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

Adults:

- 120 mL Iohexol (Omnipaque) 300 MG/ML @ 3 mL/sec

Pediatrics:

- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Field of View

Preferred 18 cm

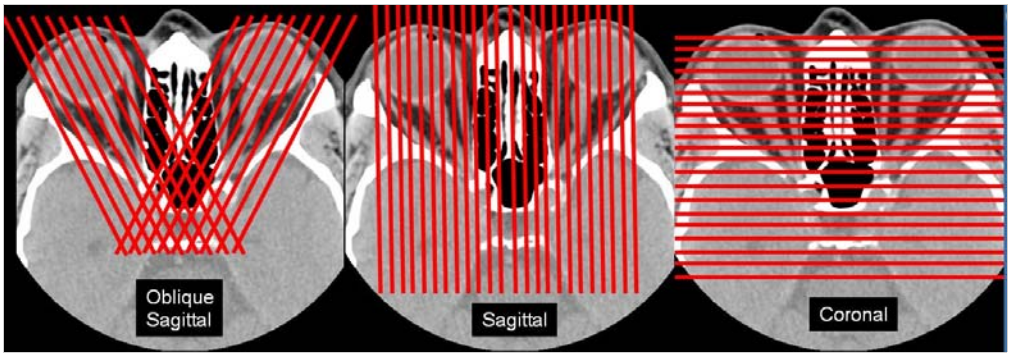
Scan Description

- 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
  - (If Indicated to do with contrast) Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection
  - Facial Trauma With Contrast: Start just below the mandible to the top of the frontal sinuses.

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: Do 2D-reformats using both the THIN ST AND THIN BONE.
- If this is a "with & without" contrast study: Do not do THIN BONE on the contrast scan. Do 2D-reformats using the THIN ST only from the contrast series AND also do 2mm x 1mm reformats using the THIN BONE from the non-

contrast series.



Orbit

Reformats

With or Without Contrast

Name	Source Recon	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 done using the with contrast series, bone reformats done using the without contrast series)

Name	Source Recon	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 (ALI_Store) PACS. 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:

- Child: (3 – 6 years)
- Infant: (0 – 3 years)

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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**
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, Smart Prep

	Adult	Child	Infant
mA	**80**	**40**	**40**
Monitoring Delay (sec)	**10**	**10**	**10**
Monitoring ISD (sec)	**2**	**2**	**2**
Enhancement Threshold (HU)	**50**	**50**	**50**
Diagnostic Delay	**12**	**6**	**6**

Series 3, Scan Phase

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	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**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

Sinuses - Diagnostic 2.7/12.13/12.14

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Rhinosinusitis, Sinusitis, Nasal Discharge, Facial pain, Sinus surgery planning

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- 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 scan factors if a coronal plane scan is ordered.

IV Contrast Parameters

Adults:

- 120 mL Iohexol (Omnipaque) 300 MG/ML @ 3 mL/sec

Pediatrics:

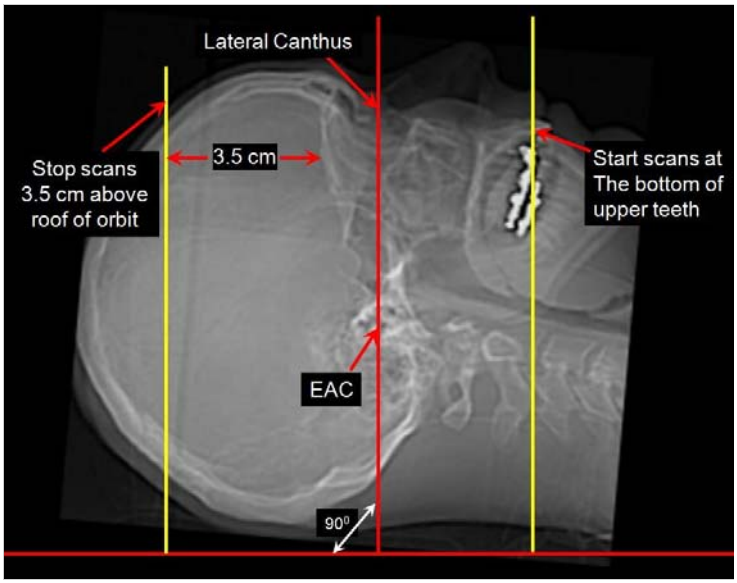
- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec
- Delay: Adults: 60 sec after start of injection; Pediatrics: 45 sec after start of injection

Field of View

Preferred 14 cm

Scan Description

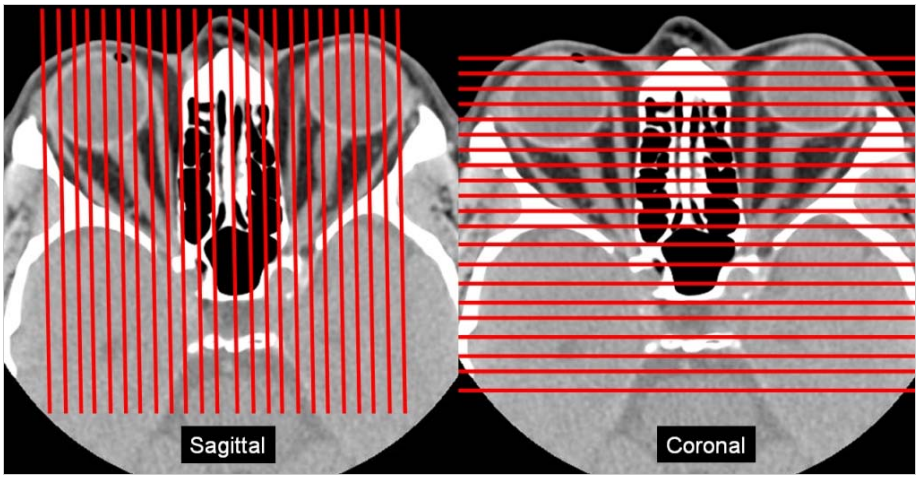
- Series 1 – Scouts PA and Lateral
- Series 2 – CT Sinus Without Contrast:
  - Adults: Scan from bottom of upper teeth to 3.5 cm above the orbital roof (see below). Be sure to include the entire nose and ears for pre-op requests.
  - Peds: Scan from bottom of upper teeth to top of frontal sinuses
- Series 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: Do 2D reformats using both THIN ST and the THIN BONE images.
- If this is a "with & without" contrast study: Do not do THIN BONE on the contrast scan. Do 2D-reformats using the THIN ST imagesonly from the contrast series and also do 2 mm x 1 mm reformats using THIN BONE images from the non-contrast series.



Sagittal and Coronal

Reformats

With or Without Contrast

Name	Source Recon	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 phases, bone reformats are made from the without contrast phases)

Name	Source Recon	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 (ALI_Store) PACS. 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:

- Child: (3 – 6 years)
- Infant: (0 – 3 years)

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(45-150)**	**(45-150)**	**(45-150)**
Manual mA	**70.0**	**70.0**	**70.0**
Noise Index	**13.1**	**13.1**	**13.1**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
DFOV	**14**	**14**	**14**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**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**

Series 3, Scan Phase

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(50-180)**	**(50-180)**	**(45-150)**
Manual mA	**90.0**	**90.0**	**70.0**
Noise Index	**15.4**	**15.4**	**13.1**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
DFOV	**14**	**14**	**14**
Recon Type	**Standard**	**Standard**	**Standard**
WW/WL	**450/50**	**450/50**	**450/50**
Recon Option	**Plus**	**Plus**	**Plus**
Recon Option	**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**

Temporal Bone (with Contrast Only or with & without Contrast) 2.11/12.20/12.21

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Otitis / mastoiditis with concern for abscess, intracranial spread, venous thrombosis

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- Only use 16 and 64 slice scanners
- 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

Adult:

- 120 mL Iohexol (Omnipaque) 300 MG/ML @ 3 mL/sec

Pediatrics:

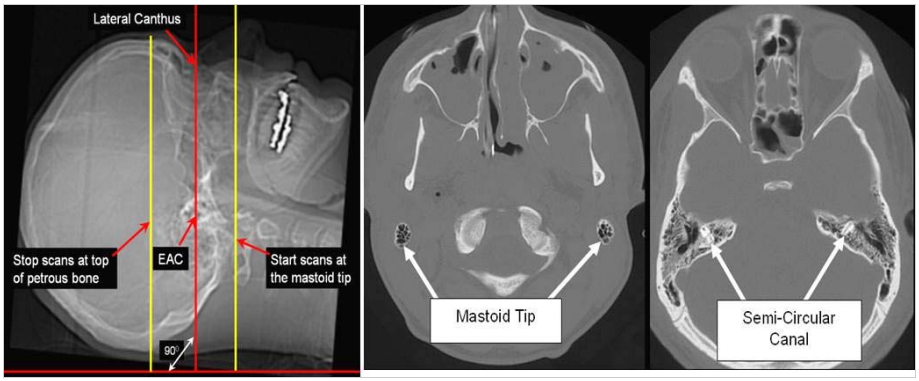
- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec

Field of View

1. Recon 1 and Retro Recons: Preferred 22 cm
2. Recon 2 and 3 of TB: 9.6 cm

Scan Description

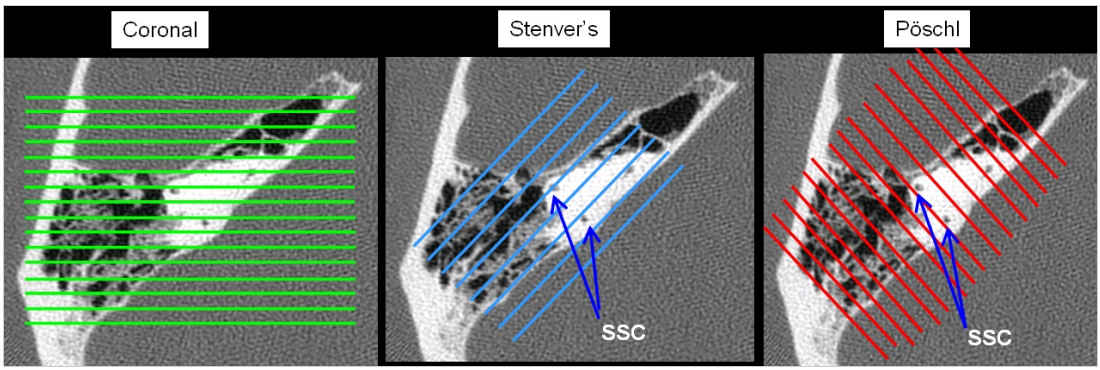
- Series 1 – Scout PA and Lateral
- Series 2 – Tbone without: Start scans at the mastoid tip and finish at the top of the petrous bone (see below)
- Series 3 – Tbone with: Begin scanning 60 seconds (adult) 45 seconds (peds) after the start of contrast: Start scans at the mastoid tip and finish at the top of the petrous bone (see below)



scan range for tbone

Reformat Instructions

- Do 1 mm by 0.5 mm 2D-reformats in the coronal, Stenver's, and Pöschl planes of each temporal bone using THIN BONE.



Sagittal and Coronal

Reformats

With and Without Contrast

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
RT CO	THIN BONE (without contrast phase)	Manual	Average	2500/350	1	0.5	Coronal
RT STENV	THIN BONE (without contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
RT POSCH	THIN BONE (without contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
RT CO	THIN BONE (with contrast phase)	Manual	Average	2500/350	1	0.5	Coronal
RT STENV	THIN BONE (with contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
RT POSCH	THIN BONE (with contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
LT CO	THIN BONE (without contrast phase)	Manual	Average	2500/350	1	0.5	Coronal
LT STENV	THIN BONE (without contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
LT POSCH	THIN BONE (without contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
LT CO	THIN BONE (with contrast phase)	Manual	Average	2500/350	1	0.5	Coronal
LT STENV	THIN BONE (with contrast phase)	Manual	Average	2500/350	1	0.5	Oblique
LT POSCH	THIN BONE (with contrast phase)	Manual	Average	2500/350	1	0.5	Oblique

Networking

All Images to (ALI_Store) PACS. 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	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
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 2 (Secondary)			
DFOV	**9.6**	**9.6**	**9.6**
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	**9.6**	**9.6**	**9.6**
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 4 (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**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Series 3, Scan Phase

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	Child	Infant
Recon 1 (Primary)			
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 2 (Secondary)			
DFOV	**9.6**	**9.6**	**9.6**
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	**9.6**	**9.6**	**9.6**
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 4 (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**
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**

Revolution 256

For Revolution 256, we suggest using Axial Mode in smart collimation mode (default collimation set to 120 mm). Below we list parameters for the non contrast and with contrast phases. Use the same reconstructions as outlined above.

Non Contrast

	Adult	Child	Infant
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**120**	**120**	**120**
Detector Rows	**192.0**	**192.0**	**192.0**
Detector Configuration	**192x0.625**	**192x0.625**	**192x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**120.00**	**120.00**	**120.00**
Rotation Time (s)	**0.8**	**0.8**	**1**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(200-690)**	**(200-690)**	**(160-550)**
Manual mA	**330.0**	**330.0**	**260.0**
Noise Index	**4.1**	**4.3**	**6.0**
Slice Thickness (mm)	**2.5**	**2.5**	**1.25**
Interval (mm)	**1.5**	**1.5**	**0.625**

With Contrast

	Adult	Child	Infant
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**120**	**120**	**120**
Detector Rows	**192.0**	**192.0**	**192.0**
Detector Configuration	**192x0.625**	**192x0.625**	**192x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**120.00**	**120.00**	**120.00**
Rotation Time (s)	**1**	**1**	**1**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(200-585)**	**(200-580)**	**(160-550)**
Manual mA	**340.0**	**340.0**	**260.0**
Noise Index	**4.8**	**5.0**	**6.0**
Slice Thickness (mm)	**2.5**	**2.5**	**1.25**
Interval (mm)	**1.5**	**1.5**	**0.625**

Adult Neck - Routine 3.1/3.2/3.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Neck mass, globus sensation, lymphadenopathy, head and neck cancer evaluation/follow-up, pharyngitis, tonsillar or peritonsillar abscess, neck abscess

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).
- Do angled views at 2.5 mm 4i for 16 slices at 2 different angles if there are many artifacts from dental fillings or metal hardware (see below)
- When scanning a N/C/A/P with contrast use 100mls(chest/abd/pel) and 50mls(neck) Iohexol 300, Inject at 2mL/sec and change the prep 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 change the prep delay to 45 seconds on the neck protocol.

IV Contrast Parameters

Adults: Under 100kg (220lbs)

- Load 100 mL Iohexol (Omnipaque) 300 MG/ML and 50 mL Sodium Chloride 0.9%
  - Inject: *Note there is no test injection*
  - 60 mLs of Iohexol at 2mLs/sec
  - 30 second pause
  - 40mLs of Iohexol at 2mLs/sec
  - 50 mLs of saline at 3mLs/sec

Adults: Over 200kg (220 lbs)

- Load 150 mL Iohexol (Omnipaque) 300 MG/ML and 50 mL Sodium Chloride 0.9%
  - Inject: *Note there is no test injection*
  - 80 mLs of Iohexol at 3mLs/sec
  - 30 second pause
  - 70mLs of Iohexol at 3mLs/sec
  - 50 mLs of saline at 3mLs/sec

Pediatrics:

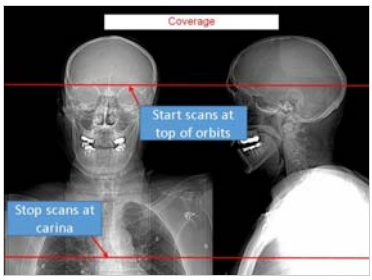
- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 1.5 mL/sec
- 20 mL Sodium Chloride 0.9% @ 1.5 mL/sec

Field of View

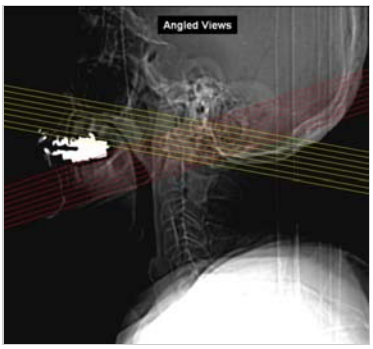
Preferred 30 cm

Scan Description

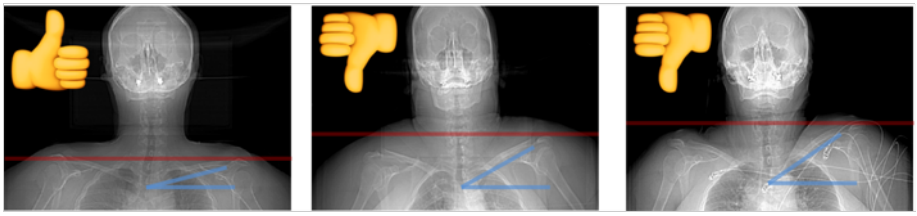
- Series 1 – Scouts PA and Lateral
- Series 2 – Neck with Contrast: Begin Scanning 85 seconds (adults) 45 seconds (peds) after the start of injection: Start the scan at the top of the orbit and scan to the carina. Remind the patient not to swallow during the scan.
- Series 3 - Angled Axials- If there is a significant amount of metal artifact from dental work, perform angled axials at 2 different angels. (see below picture)



scan range for neck



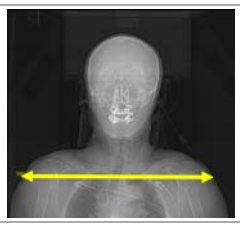
Angled Views



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 Recon	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 (ALI_Store) PACS. Do not send Thin Bone or Thin STD. Note: if smartprep is used, please also send the screen save (Series 99) of the smartprep locations and enhancement curve.

- Send both standard and bone plus series for the angled axial images to (ALI_Store) PACS.

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	20	20	20
Detector Rows	32.0	32.0	32.0
Detector Configuration	32x0.625	32x0.625	32x0.625
Scan FOV	Medium Body	Large Body	Large Body
Pitch	0.531	0.531	0.531
Speed (mm/rot)	10.60	10.60	10.60
Rotation Time (s)	0.4	0.8	1
kV	120	140	140
AEC type	smart mA	smart mA	smart mA
mA Range	(240-780)	(160-630)	(150-680)
Manual mA	610.0	400.0	370.0
Noise Index	14.4	17.0	25.3
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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (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**
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**
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**
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, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Large Body**	**Large Body**	**Large Body**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**20.00**	**20.00**	**20.00**
Rotation Time (s)	**0.7**	**0.7**	**0.7**
kV	**120**	**120**	**120**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(190-770)**	**(190-770)**	**(190-770)**
Manual mA	**450.0**	**450.0**	**450.0**
Noise Index	**4.6**	**4.6**	**4.6**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

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	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**
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**

Series 3, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Large Body**	**Large Body**	**Large Body**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**20.00**	**20.00**	**20.00**
Rotation Time (s)	**0.7**	**0.7**	**0.7**
kV	**120**	**120**	**120**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(190-770)**	**(190-770)**	**(190-770)**
Manual mA	**450.0**	**450.0**	**450.0**
Noise Index	**4.6**	**4.6**	**4.6**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

Series 3, Group 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	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**
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**

Neck (Parathyroid Adenoma) Adult 3.5/3.6/3.7

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.
- Patient Supine, PA and lateral scouts from sella to mid chest, no gantry angle
- Only do on a 64 slice scanner
- **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 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

Adults:

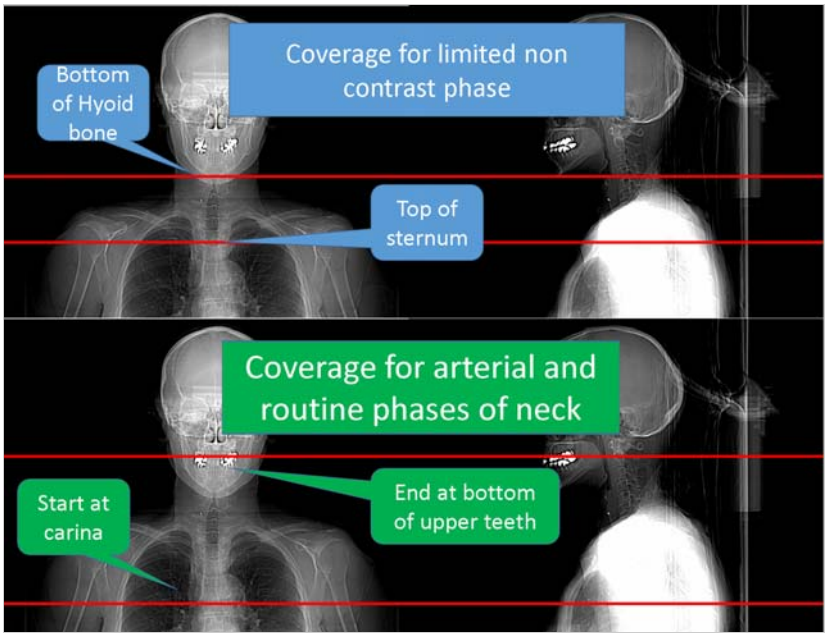
- 100 mL Iohexol (Omnipaque) 300 MG/ML @ 4 mL/sec
- 50 mL Sodium Chloride 0.9% @ 4 mL/sec

Field of View

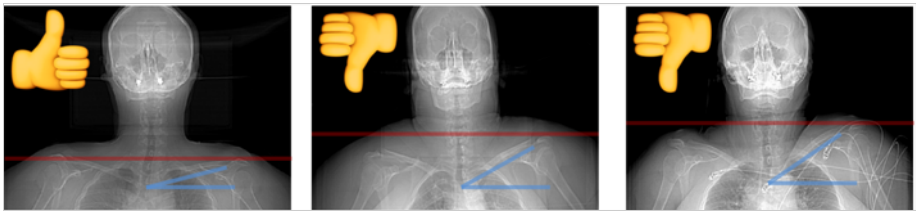
1. Series 2: 20 cm
2. Series 3: (as in routine neck CT)

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 Limited Non Contrast Phase: top of sternum through hyoid
- Series 3
  - Smart Prep: Over aortic arch (initiate scan at the entry of contrast in the aortic arch)
  - Arterial Phase of Lower Neck: Start scans at carina and scan to bottom of the upper teeth. Standard Algorithm only
    - Scan the routine neck immediately after the arterial neck, without any delay.
- Series 4 – Routine Neck: Start the scan at the carina and scan to the top of the hard palate.
  - Do not use any CT scan delay, start scanning the routine neck CT immediately after Series 2 is finished.
  - Do angled views if necessary



Coverage for non con and arterial phases



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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
SA ST	Thin ST (from arterial phase)	Manual	Average	400/30	2	1	Sagittal
CO ST	Thin ST from arterial phase)	Manual	Average	400/30	2	1	Coronal
CO BONE	Thin Bone (from routine neck phase)	Manual	Average	2500/350	1.5	0.75	Coronal
SA ST	Thin ST (from routine neck phase)	Manual	Average	300/35	3	1.5	Sagittal
SA BONE	Thin Bone (from routine neck phase)	Manual	Average	2500/350	1.5	0.75	Sagittal

Networking

All images (including thins) sent to (ALI_Store) PACS. 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 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	**Large Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**120**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(330-760)**	**(330-760)**	**(330-760)**
Manual mA	**570.0**	**570.0**	**570.0**
Noise Index	**10.9**	**10.9**	**10.9**
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	**20**	**20**	**20**
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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(240-780)**	**(160-630)**	**(150-680)**
Manual mA	**610.0**	**400.0**	**370.0**
Noise Index	**14.4**	**17.0**	**25.3**
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	**20**	**20**	**20**
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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(240-780)**	**(160-630)**	**(150-680)**
Manual mA	**610.0**	**400.0**	**370.0**
Noise Index	**14.4**	**17.0**	**25.3**
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**	**30**	**30**
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% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**1.5**	**1.5**	**1.5**
Recon 2 (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**
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**
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**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**0.625**	**0.625**	**0.625**
Interval (mm)	**0.312**	**0.312**	**0.312**

Series 5, Group 1, Scan Phase

	Small	Medium	Large
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Large Body**	**Large Body**	**Large Body**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**20.00**	**20.00**	**20.00**
Rotation Time (s)	**0.7**	**0.7**	**0.7**
kV	**120**	**120**	**120**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(190-770)**	**(190-770)**	**(190-770)**
Manual mA	**450.0**	**450.0**	**450.0**
Noise Index	**4.6**	**4.6**	**4.6**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

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	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**
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**

Series 5, Group 2, Scan Phase

	Small	Medium	Large
Scan Type	**Axial**	**Axial**	**Axial**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Large Body**	**Large Body**	**Large Body**
Pitch	**1**	**1**	**1**
Speed (mm/rot)	**20.00**	**20.00**	**20.00**
Rotation Time (s)	**0.7**	**0.7**	**0.7**
kV	**120**	**120**	**120**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(190-770)**	**(190-770)**	**(190-770)**
Manual mA	**450.0**	**450.0**	**450.0**
Noise Index	**4.6**	**4.6**	**4.6**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**

Series 5, Group 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	**Full**	**Full**	**Full**
Recon Option			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**
Interval (mm)	**N/A**	**N/A**	**N/A**
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**

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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Neck mass, globus sensation, lymphadenopathy, head and neck cancer evaluation/follow-up, pharyngitis, tonsillar or peritonsillar abscess, neck abscess

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).
- Do angled views at 2.5 mm 4i for 16 slices at 2 different angles if there are many artifacts from dental fillings or metal hardware (see below)
- When scanning a N/C/A/P with contrast use 100mls(chest/abd/pel) and 50mls(neck) Iohexol 300, Inject at 2mL/sec and change the prep 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 change the prep delay to 45 seconds on the neck protocol.

IV Contrast Parameters

Adults: Under 100kg (220lbs)

- Load 100 mL Iohexol (Omnipaque) 300 MG/ML and 50 mL Sodium Chloride 0.9%
  - Inject: *Note there is no test injection*
  - 60 mLs of Iohexol at 2mLs/sec
  - 30 second pause
  - 40mLs of Iohexol at 2mLs/sec
  - 50 mLs of saline at 3mLs/sec

Adults: Over 200kg (220 lbs)

- Load 150 mL Iohexol (Omnipaque) 300 MG/ML and 50 mL Sodium Chloride 0.9%
  - Inject: *Note there is no test injection*
  - 80 mLs of Iohexol at 3mLs/sec
  - 30 second pause
  - 70mLs of Iohexol at 3mLs/sec
  - 50 mLs of saline at 3mLs/sec

Pediatrics:

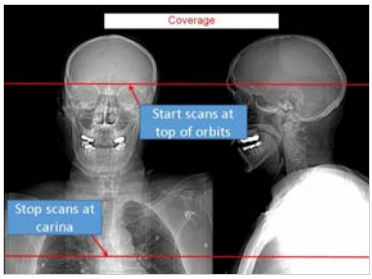
- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 1.5 mL/sec
- 20 mL Sodium Chloride 0.9% @ 1.5 mL/sec

Field of View

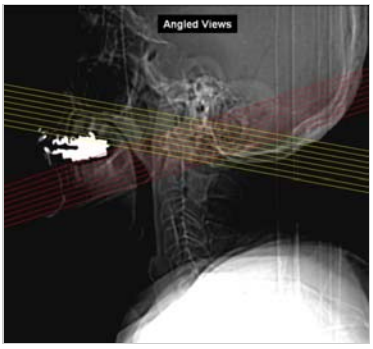
Preferred 30 cm

Scan Description

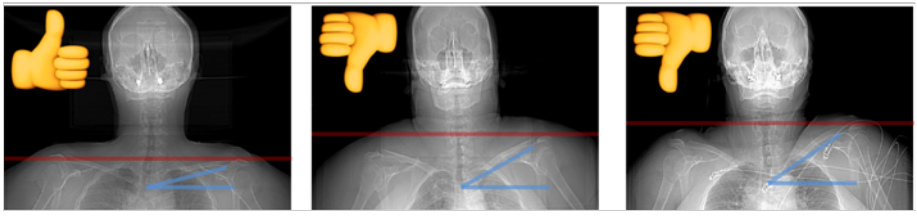
- Series 1 – Scouts PA and Lateral
- Series 2 – Neck with Contrast: Begin Scanning 85 seconds (adults) 45 seconds (peds) after the start of injection: Start the scan at the top of the orbit and scan to the carina. Remind the patient not to swallow during the scan.
- Series 3 - Angled Axials- If there is a significant amount of metal artifact from dental work, perform angled axials at 2 different angels. (see below picture)



scan range for neck



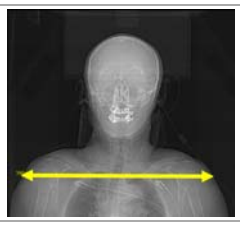
Angled Views



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 Recon	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 (ALI_Store) PACS. 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	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	600/50	600/50	600/50	600/50	600/50

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	**20**	**20**	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**27.50**	**27.50**	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**	**0.4**	**0.5**
kV	**80**	**80**	**80**	**100**	**120**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(110-450)**	**(150-540)**	**(120-470)**	**(120-560)**	**(190-730)**
Manual mA	**400.0**	**480.0**	**420.0**	**480.0**	**640.0**
Noise Index	**9.8**	**11.1**	**12.5**	**11.3**	**11.5**
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/44-55 cm
Recon 1 (Primary)					
DFOV	**30**	**30**	**30**	**30**	**30**
Recon Type	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
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)	**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	**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)	**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	**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 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**

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	**Axial**	**Axial**	**Axial**	**Axial**	**Axial**
Beam Collimation	**20**	**20**	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Medium Body**	**Medium Body**
Pitch	**1**	**1**	**1**	**1**	**1**
Speed (mm/rot)	**20.00**	**20.00**	**20.00**	**20.00**	**20.00**
Rotation Time (s)	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
kV	**80**	**80**	**80**	**100**	**100**
AEC type	**Manual mA**	**Manual mA**	**Manual mA**	**Manual mA**	**Manual mA**
mA Range	**(190-675)**	**(190-675)**	**(190-675)**	**(190-770)**	**(190-770)**
Manual mA	**450.0**	**450.0**	**450.0**	**450.0**	**450.0**
Noise Index	**4.6**	**4.6**	**4.6**	**4.6**	**4.6**
Slice Thickness (mm)	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Interval (mm)	**20**	**20**	**20**	**20**	**20**

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	**22**	**22**	**22**	**22**	**22**
Recon Type	**Standard**	**Standard**	**Standard**	**Standard**	**Standard**
WW/WL	**400/45**	**400/45**	**400/45**	**400/45**	**400/45**
Recon Option	**Full**	**Full**	**Full**	**Full**	**Full**
Recon Option					
ASiR/ASiR256/DLIR	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / Medium**	**30% / 10% / 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**

Adult Cervical Spine (without Metal) 3.16/3.17/3.18

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Trauma, neck pain, cervical stenosis, radiculopathy, fracture, evaluate fixation hardware

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- 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
- Post myelography 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

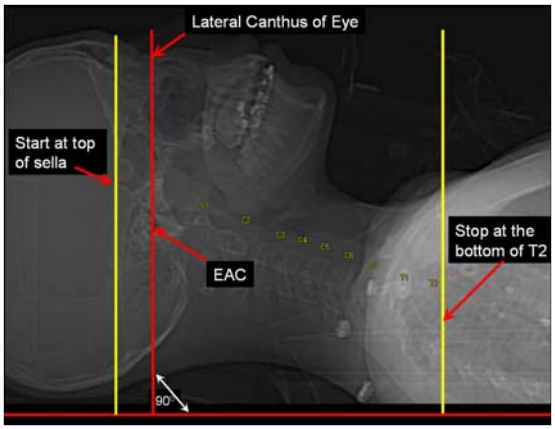
80 mL Iohexol (Omnipaque) 300 MG/ML @ 3.5 mL/sec (use 120 mL if a CT of the head will also be obtained)

Field of View

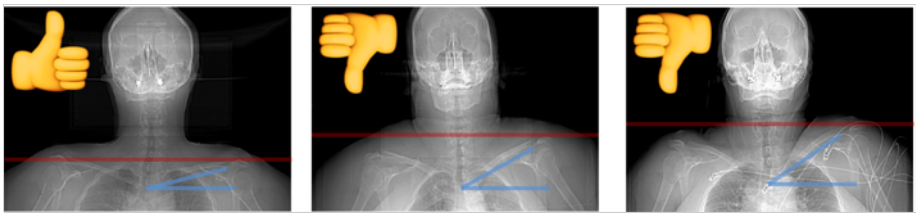
Preferred 18 cm

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
  - Smart Prep over the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 15 sec (16 slice scanners), 20 sec (64 slice scanners)
  - CT Cspine with: Scan from the top of the sella to the bottom of T2

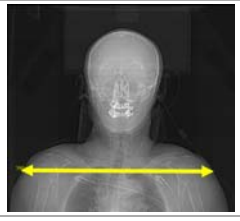


scan range for c-spine



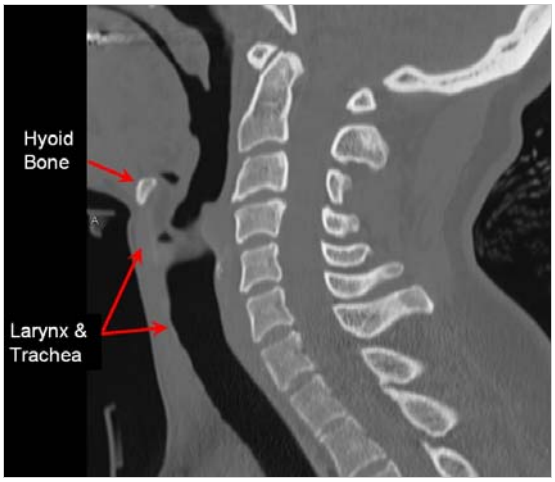
Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there 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 exam is solely with contrast or solely without contrast:
  - Do 2-D reformats using both THIN ST and THIN BONE images.
- If this is a “with & without” contrast study:
  - Do not do THIN BONE on the contrast scan. Do 2-D reformats using the THIN ST images only from the contrast series.
  - Do 1.5 mm by 0.8 mm reformats using THIN BONE images from the non-contrast series.



Reformats

With or Without Contrast

Name	Source Recon	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 Recon	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 (ALI_Store) PACS 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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(240-780)**	**(160-630)**	**(150-680)**
Manual mA	**610.0**	**400.0**	**370.0**
Noise Index	**14.4**	**17.0**	**25.3**
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	**18**	**18**	**18**
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	**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**
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**	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**120**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(240-780)**	**(160-630)**	**(150-680)**
Manual mA	**610.0**	**400.0**	**370.0**
Noise Index	**14.4**	**17.0**	**25.3**
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	**18**	**18**	**18**
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	**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**
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**	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

Adult Cervical Spine (With Metal) 3.19/3.20/3.21

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Trauma, neck pain, cervical stenosis, radiculopathy, fracture, evaluate fixation hardware

Video for this protocol

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- 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
- Post myelography 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

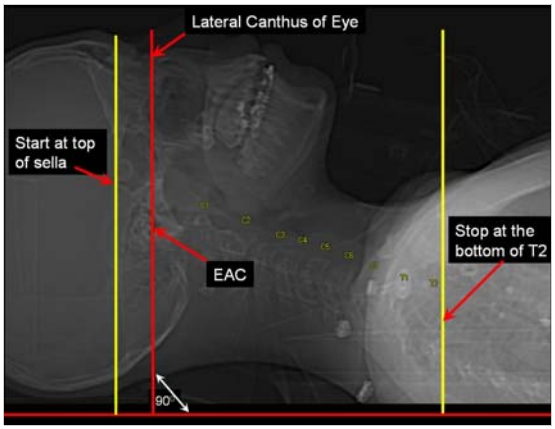
80 mL Iohexol (Omnipaque) 300 MG/ML @ 3.5 mL/sec (use 120 mL if a CT of the head will also be obtained)

Field of View

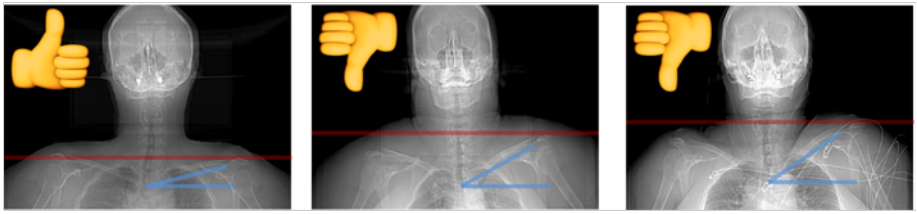
Preferred 18 cm

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
  - Smart Prep over the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 15 sec (16 slice scanners), 20 sec (64 slice scanners)
  - CT Cspine with: Scan from the top of the sella to the bottom of T2

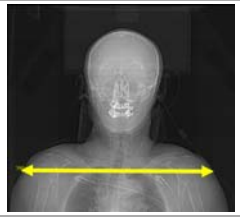


scan range for cspine



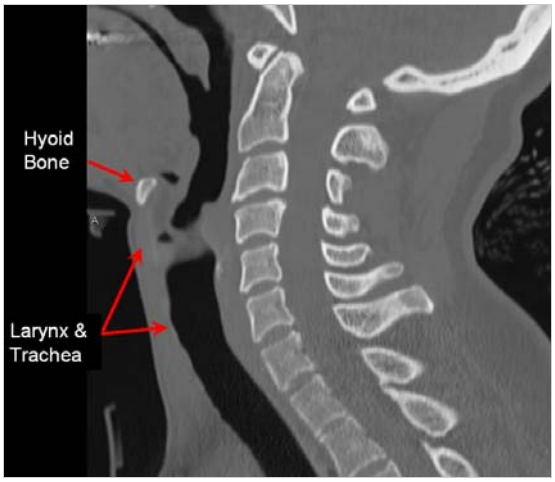
Examples of good and bad shoulder position relative to the neck. The techniques listed above can get a patient from having a poor positioning of the shoulder to a good position. Note: try to recognize improper shoulder relaxation before you scout. If, however, you only notice this after you scout, there 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 exam is solely with contrast or solely without contrast:
  - Do 2-D reformats using both THIN ST and THIN BONE images.
- If this is a “with & without” contrast study:
  - Do not do THIN BONE on the contrast scan. Do 2-D reformats using the THIN ST images only from the contrast series.
  - Do 1.5 mm by 0.8 mm reformats using THIN BONE images from the non-contrast series.



Reformats

With or Without Contrast

Name	Source Recon	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 Recon	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 (ALI_Store) PACS 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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.5**	**0.9**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(200-650)**	**(170-680)**	**(180-715)**
Manual mA	**510.0**	**420.0**	**440.0**
Noise Index	**11.3**	**15.5**	**23.1**
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	**18**	**18**	**18**
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	**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**
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**	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

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	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Medium Body**	**Large Body**	**Large Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.5**	**0.9**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(200-650)**	**(170-680)**	**(180-715)**
Manual mA	**510.0**	**420.0**	**440.0**
Noise Index	**11.3**	**15.5**	**23.1**
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	**18**	**18**	**18**
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	**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**
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**	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

Adult Thoracic Spine (without Metal) 7.4/7.5/7.6

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Trauma, thoracic pain, thoracic stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Non-contrast unless otherwise protocoled
- 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

80 mL Iohexol (Omnipaque) 300 MG/ML @ 3.5 mL/sec (use 120 mL if a CT of the head will also be obtained)

Field of View

Preferred 18 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT Tspine without: Scan from the top of C7 to the bottom of L1
- Series 3
  - Smart Prep over the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 15 sec (16 slice scanners), 20 sec (64 slice scanners)
  - CT Tspine with: Scan from the top of C7 to the bottom of L1

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 Recon	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 Recon	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 (ALI_Store) PACS 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	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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-650)**	**(70-700)**	**(60-710)**
Manual mA	**410.0**	**350.0**	**410.0**
Noise Index	**17.5**	**19.5**	**25.5**
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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-650)**	**(70-700)**	**(60-710)**
Manual mA	**410.0**	**350.0**	**410.0**
Noise Index	**17.5**	**19.5**	**25.5**
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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

Adult Thoracic Spine (with Metal) 7.13/7.14/7.15

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Trauma, thoracic pain, thoracic stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Non-contrast unless otherwise protocoled
- 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

80 mL Iohexol (Omnipaque) 300 MG/ML @ 3.5 mL/sec (use 120 mL if a CT of the head will also be obtained)

Field of View

Preferred 18 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT Tspine without: Scan from the top of C7 to the bottom of L1
- Series 3
  - Smart Prep over the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 15 sec (16 slice scanners), 20 sec (64 slice scanners)
  - CT Tspine with: Scan from the top of C7 to the bottom of L1

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 Recon	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 Recon	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 (ALI_Store) PACS 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	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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-680)**	**(60-630)**	**(60-680)**
Manual mA	**430.0**	**320.0**	**390.0**
Noise Index	**11.5**	**15.5**	**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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-680)**	**(60-630)**	**(60-680)**
Manual mA	**430.0**	**320.0**	**390.0**
Noise Index	**11.5**	**15.5**	**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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

Adult Lumbar Spine (without Metal) 7.1/7.2/7.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Trauma, neck pain, lumbar stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Non-contrast unless otherwise protocoled
- 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

80 mL Iohexol (Omnipaque) 300 MG/ML @ 3.5 mL/sec (use 120 mL if a CT of the head will also be obtained)

Field of View

Preferred 18 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT Lspine without: Scan from the top of T12 to the top of S2
- Series 3
  - Smart Prep over the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 15 sec (16 slice scanners), 20 sec (64 slice scanners)
  - CT Lspine with: Scan from the top of T12 to the top of S2

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 Recon	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 Recon	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 (ALI_Store) PACS 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	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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-650)**	**(70-700)**	**(60-710)**
Manual mA	**410.0**	**350.0**	**410.0**
Noise Index	**17.5**	**19.5**	**25.5**
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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.5**	**0.7**	**0.8**
kV	**100**	**120**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(80-650)**	**(70-700)**	**(60-710)**
Manual mA	**410.0**	**350.0**	**410.0**
Noise Index	**17.5**	**19.5**	**25.5**
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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

Adult Lumbar Spine (with Metal) 7.10/7.11/7.12

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Trauma, neck pain, lumbar stenosis, radiculopathy, fracture, evaluate fixation hardware

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, no gantry angle
- Extend the scouts to include the aortic arch for smart prep if IV contrast is to be used.
- Non-contrast unless otherwise protocoled
- 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

80 mL Iohexol (Omnipaque) 300 MG/ML @ 3.5 mL/sec (use 120 mL if a CT of the head will also be obtained)

Field of View

Preferred 18 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – CT Lspine without: Scan from the top of T12 to the top of S2
- Series 3
  - Smart Prep over the aortic arch.
    - CT scan delay after arrival of contrast in aortic arch:
    - 15 sec (16 slice scanners), 20 sec (64 slice scanners)
  - CT Lspine with: Scan from the top of T12 to the top of S2

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 Recon	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 Recon	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 (ALI_Store) PACS 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	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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-680)**	**(60-630)**	**(60-680)**
Manual mA	**430.0**	**320.0**	**390.0**
Noise Index	**11.5**	**15.5**	**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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

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	**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	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.8**	**1**
kV	**140**	**140**	**140**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(90-680)**	**(60-630)**	**(60-680)**
Manual mA	**430.0**	**320.0**	**390.0**
Noise Index	**11.5**	**15.5**	**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	**18**	**18**	**18**
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	**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**
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	**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**
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	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**
Recon 5 (Secondary)			
DFOV	**Adults 18, Peds 15**	**Adults 18, Peds 15**	**Adults 18, Peds 15**
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**

Stroke Deluxe – Total Cerebrovascular 1.6/11.16 /11.17

If you get an order for perfusion only, please still do the non-con and with-con head along with the perfusion. Just skip the CTA head/neck.

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project /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.
- Patient Supine, PA and lateral scouts, No Gantry Tilt
- Extend the scouts to include the aortic arch for smart prep.
- 16 or 64 slice scanners only
- 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).

IV Contrast Parameters

CTA Contrast for Adults:

- 80 mL Iopamidol (Isovue 370) 76% @ 4 mL/sec
- 50 mL Sodium Chloride 0.9% @ 4 mL/sec

CTA Contrast for Peds:

- 1.0 ml/kg Iopamidol (Isovue 370) 76% @ 2.0 mL/sec
- 10 mL Sodium Chloride 0.9% @ 2.0 mL/sec

Perfusion Contrast Adults:

- 40 ml of Isovue 370 (14.8 g Iodine) with 30 mL saline chase
- Injection Rate Adults: 5 mL per sec with a 5 sec prep delay

Perfusion Contrast Peds:

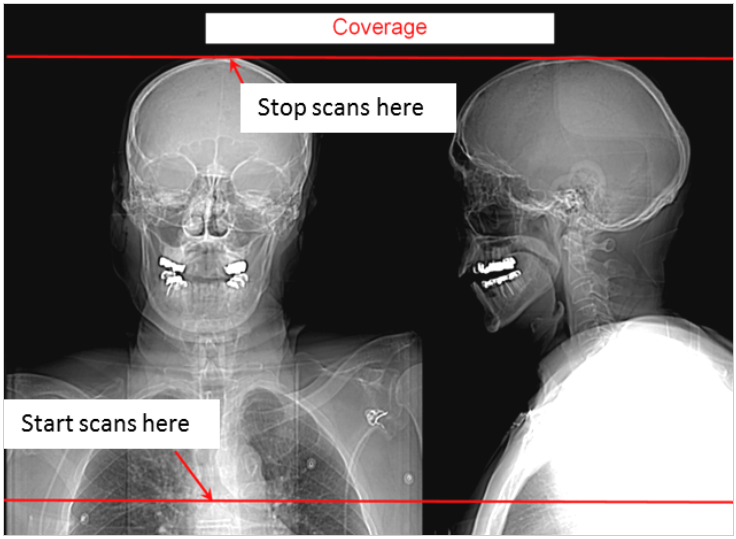
- 0.5 mL/kg Isovue 370 with 10 mL saline chase
- 3-4 mL per sec (Depends on size of needle and age of patient)

Field of View

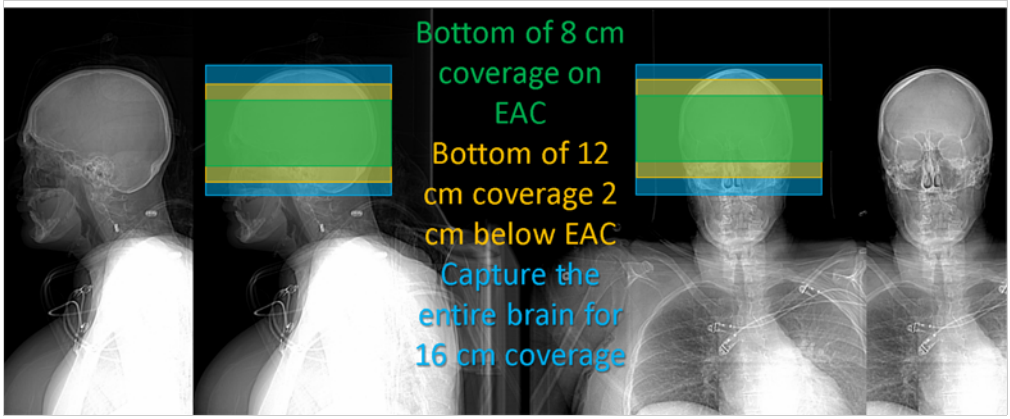
Preferred 22 cm

Scan Description

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



Scan Range



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

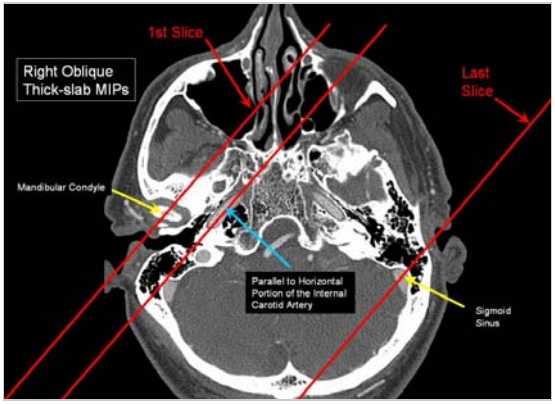
Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

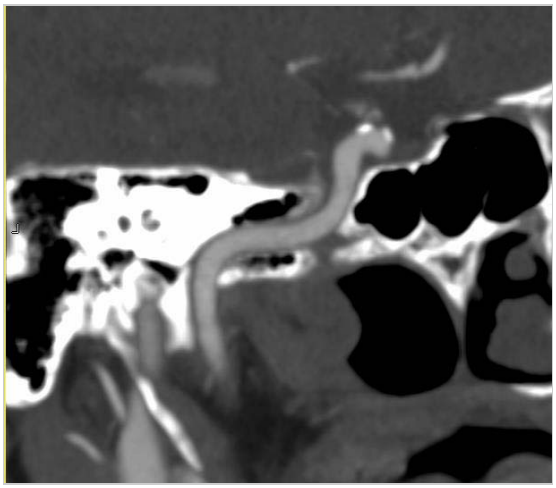
Thin MIP 2D-Reformations through the vertebral and carotid arteries

- 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



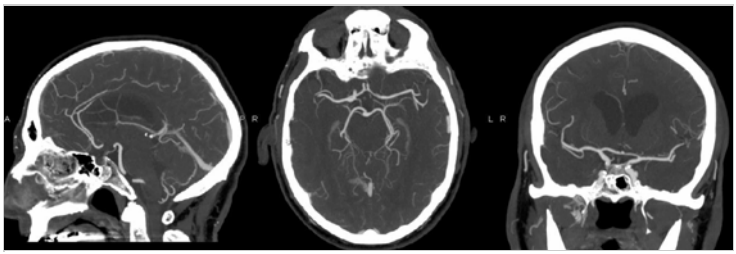
What reformats should look like

Name	Source Recon	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).

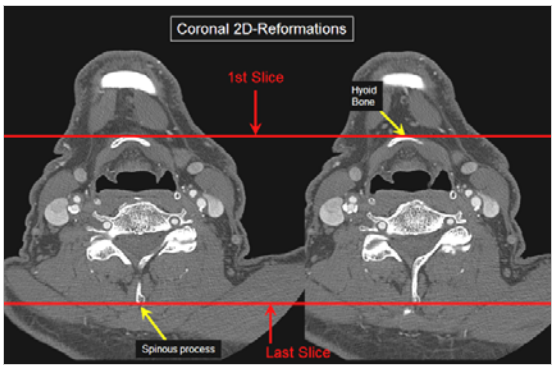


What reformats should look like

Name	Source Recon	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 Recon	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 (ALI_Store) PACS.

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.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
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**
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	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	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	**Large Body**	**Medium Body**	**Medium Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(330-760)**	**(330-760)**	**(270-610)**
Manual mA	**570.0**	**570.0**	**430.0**
Noise Index	**10.9**	**10.9**	**9.2**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	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**
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**
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**

Series 4, Perfusion

Perfusion Details can be found on the perfusion appendix page

Series 5, Scan Phase

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 5, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

CTA Head Only (Stenosis, Aneurysm, Unknown Bleed) 1.7/11.18/11.19

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.
- Patient Supine, PA and lateral scouts, No Gantry Tilt
- Extend the scouts to include the aortic arch for smart prep.
- 16 or 64 slice scanners only
- 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).

IV Contrast Parameters

CTA Contrast for Adults:

- 80 mL Iopamidol (Isovue 370) 76% @ 4 mL/sec
- 50 mL Sodium Chloride 0.9% @ 4 mL/sec

CTA Contrast for Peds:

- 1.0 ml/kg Iopamidol (Isovue 370) 76% @ 2.0 mL/sec
- 10 mL Sodium Chloride 0.9% @ 2.0 mL/sec

Perfusion Contrast Adults:

- 40 ml of Isovue 370 (14.8 g Iodine) with 30 mL saline chase
- Injection Rate Adults: 5 mL per sec with a 5 sec prep delay

Perfusion Contrast Peds:

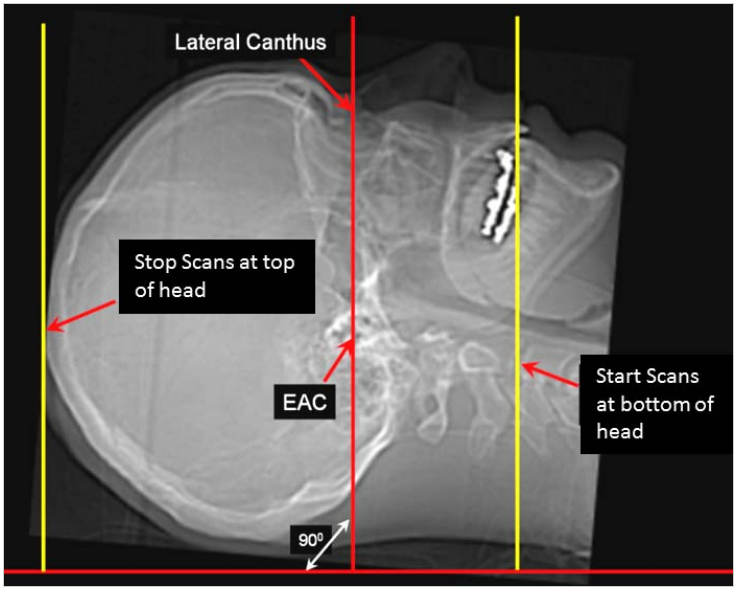
- 0.5 mL/kg Isovue 370 with 10 mL saline chase
- 3-4 mL per sec (Depends on size of needle and age of patient)

Field of View

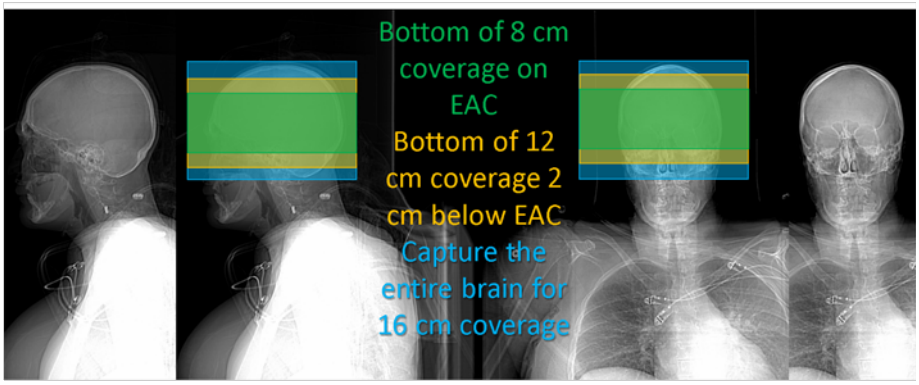
Preferred 22 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – Routine CT Head without contrast (Helical)
- Series 3
  - Smart Prep: Aortic arch (initiate the scan at contrast entry)
  - CTA Head Only: Scan from bottom of C2 to the top of head (bottom up)
- Series 4 – CT Perfusion: 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.



Scan Range



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

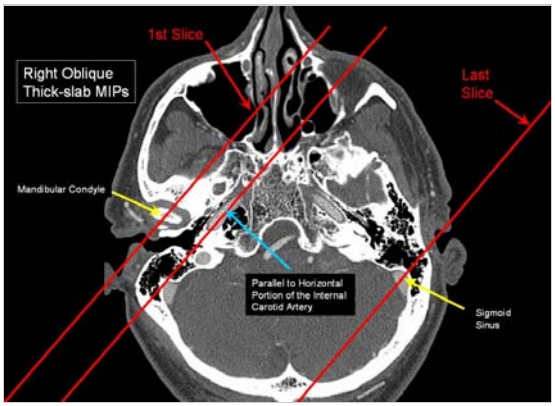
Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

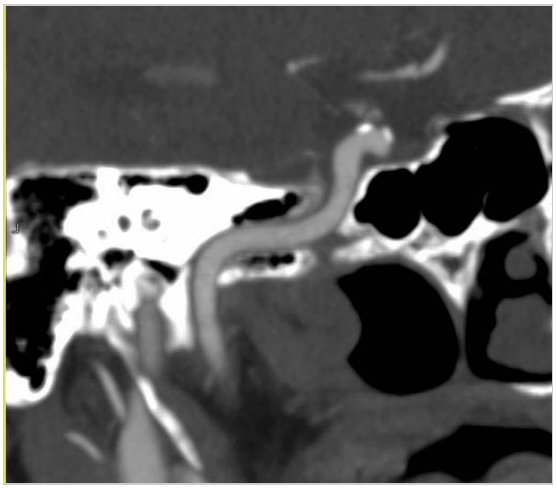
Thin MIP 2D-Reformations through the vertebral and carotid arteries

- 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



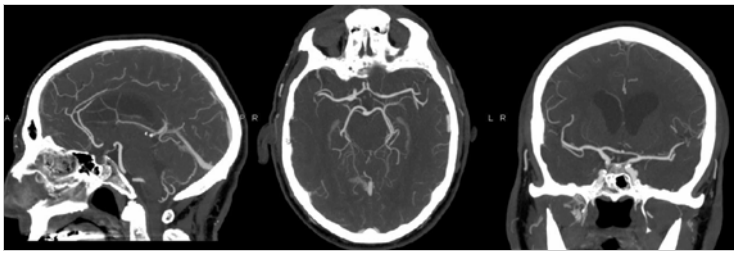
What reformats should look like

Name	Source Recon	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 Recon	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 (ALI_Store) PACS.

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.

Miscellaneous

None

Acquisition Parameters

Series 1, Scout

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
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**
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	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	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**
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**
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**

Series 4, Perfusion

Perfusion Details can be found on the perfusion appendix page

Series 4, Recons

	Adult	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 5, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

CTA Neck Only (Cerebrovascular Disease) 3.11/11.22/11.23

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.
- Patient Supine, PA and lateral scouts, No Gantry Tilt
- Extend the scouts to include the aortic arch for smart prep.
- 16 or 64 slice scanners only
- 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).

IV Contrast Parameters

Adults:

- 80 mL Iopamidol (Isovue 370) 76% @ 4 mL/sec
- 50 mL Sodium Chloride 0.9% @ 4 mL/sec

Pediatrics:

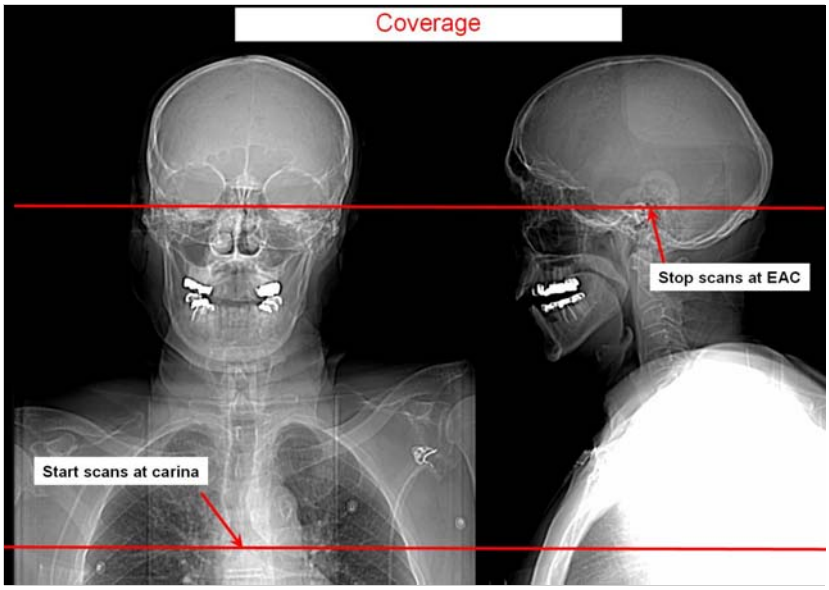
- 1.5 mL/kg (1.5 ml/kg) Iohexol (Omnipaque) 300 MG/ML @ 2.5 mL/sec
- 25 mL Sodium Chloride 0.9% @ 2.5 mL/sec

Field of View

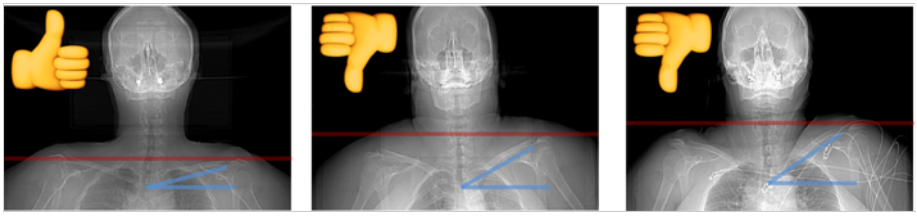
Preferred 22 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2
  - Smart Prep: Aortic arch (initiate the scan at contrast entry)
  - CTA Neck Only: Scan from Carina and end at EAC (bottom to top.)
- 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.**



CTA Neck Only Coverage



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.

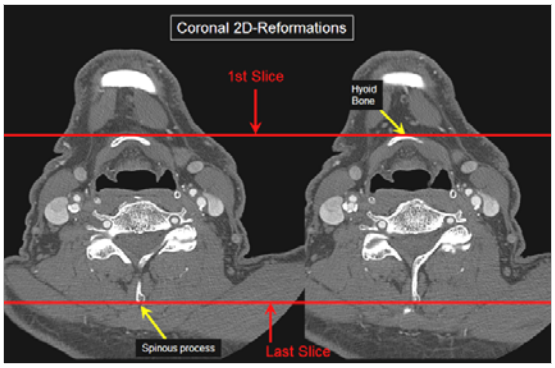
Reformat Instructions

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 Recon	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 (ALI_Store) PACS. 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	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	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	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	**Large Body**	**Medium Body**	**Medium Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(330-760)**	**(330-760)**	**(270-610)**
Manual mA	**570.0**	**570.0**	**430.0**
Noise Index	**10.9**	**10.9**	**9.2**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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**
ASiR/ASiR256/DLIR	**None**	**None**	**None**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

CT Venography 1.9/11.24/11.25

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/resources/

Clinical Instructions

Indication

Venous Sinus Thrombosis

Oral Contrast

None

Pre-Scan Instructions

- Patient Supine, PA and lateral scouts, No Gantry Tilt
- 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).

IV Contrast Parameters

Adult:

- 120 mL Iohexol (Omnipaque) 300 MG/ML @ 3.8 mL/sec (31.6 sec contrast injection time)
- 50 mL Sodium Chloride 0.9% @ 3.8 mL/sec

Pediatrics:

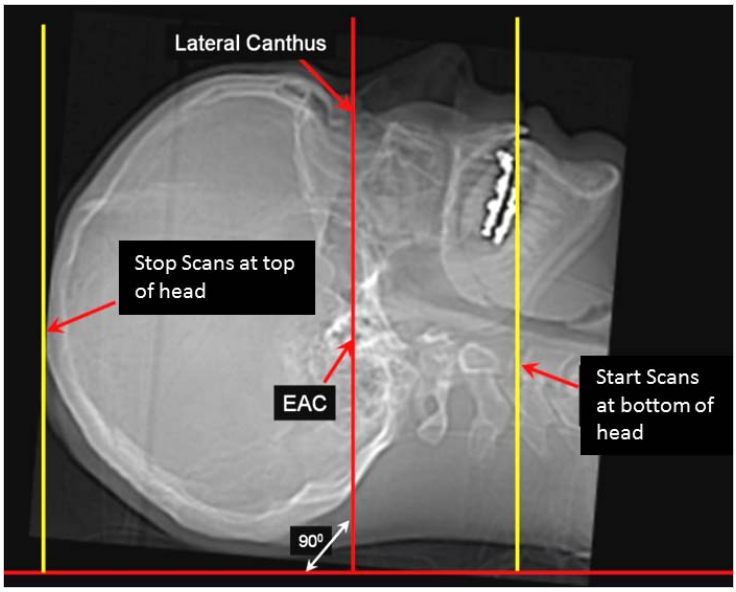
- 1.5 mL/kg Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec
- 25 mL Sodium Chloride 0.9% @ 1.5 mL/sec

Field of View

Preferred 22 cm

Scan Description

- Series 1 – Scouts PA and Lateral
- Series 2 – Routine CT Head without contrast (Helical)
- Series 3 - Smart Prep: Aortic arch –
  - CTV Head Only: Scan from bottom of C2 to the top of head (bottom up)
    - Timing: initiate the scan 5 seconds after entry of contrast in aortic arch (i.e. the delay will be the auto minimum plus this extra 5 seconds)
  - CTV Head and Neck: Scan from carina to top of head (bottom up)
    - Timing: initiate scan 10 seconds after entry of contrast in aortic arch (i.e. the delay will be the auto minimum plus the extra 10 seconds)
- Series 4 – Routine Head With contrast (Helical): Wait at least 5 min from start of CTV contrast injection before beginning scan.



Scan range

Reformat Instructions

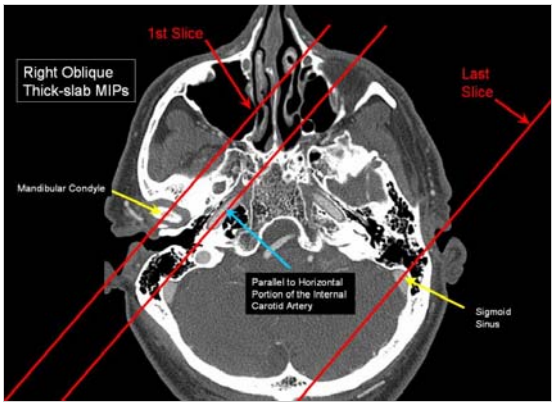
Please send all images to PACS before starting reformats. See table below for reformat instructions.

Reformats

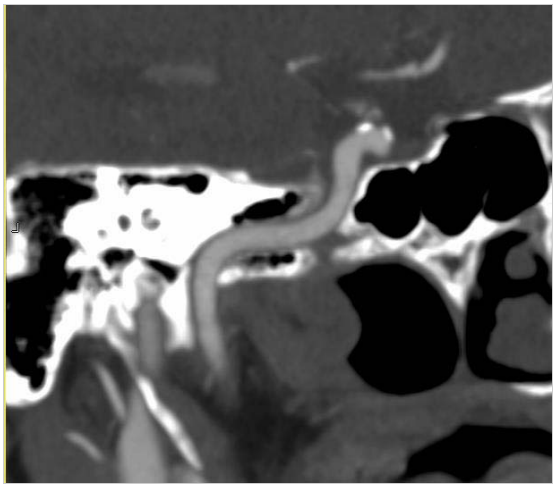
Thin MIP 2D-Reformations through the vertebral and carotid arteries

- 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



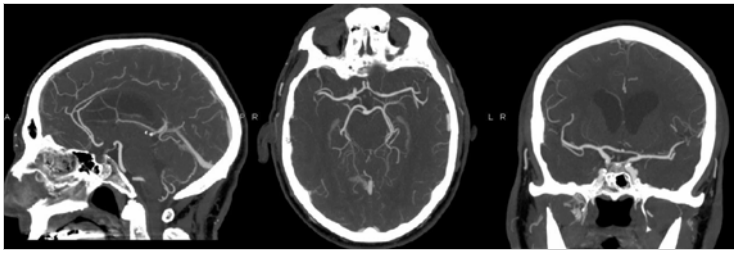
What reformats should look like

Name	Source Recon	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).

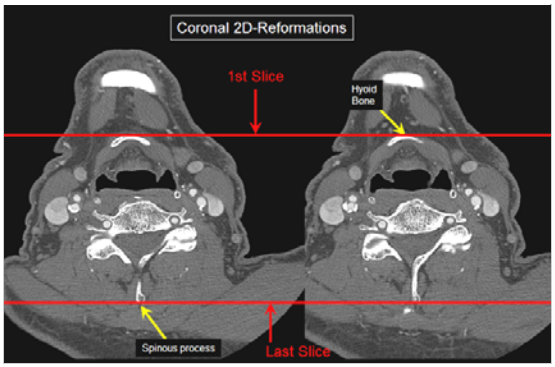


What reformats should look like

Name	Source Recon	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 Recon	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 (ALI_Store) PACS. 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	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	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(170-600)**	**(170-600)**	**(170-600)**
Manual mA	**280.0**	**280.0**	**280.0**
Noise Index	**6.5**	**6.8**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 2, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
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**
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	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	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	**Large Body**	**Medium Body**	**Medium Body**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**21.20**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.4**
kV	**120**	**100**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(330-760)**	**(330-760)**	**(270-610)**
Manual mA	**570.0**	**570.0**	**430.0**
Noise Index	**10.9**	**10.9**	**9.2**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 3, Recons

	Adult	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**
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

	Adult	Child	Infant
Scan Type	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**
Detector Rows	**32.0**	**32.0**	**32.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**
Scan FOV	**Head**	**Small Head**	**Small Head**
Pitch	**0.531**	**0.531**	**0.531**
Speed (mm/rot)	**10.60**	**10.60**	**10.60**
Rotation Time (s)	**0.4**	**0.5**	**0.4**
kV	**100**	**80**	**80**
AEC type	**smart mA**	**smart mA**	**smart mA**
mA Range	**(220-740)**	**(170-590)**	**(170-600)**
Manual mA	**370.0**	**290.0**	**280.0**
Noise Index	**7.7**	**8.0**	**6.8**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**
Interval (mm)	**0.625**	**0.625**	**0.625**

Series 4, Recons

	Adult	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			
ASiR/ASiR256/DLIR	**60% / 30% / High**	**60% / 30% / High**	**60% / 30% / High**
Slice Thickness (mm)	**5.0**	**5.0**	**5.0**
Interval (mm)	**3.0**	**3.0**	**3.0**

Routine Abdomen/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://www.radiology.wisc.edu/uw-ge-ct-protocol-project /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.

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

IV Contrast Parameters

Contrast Dosage (patients should have a 22G IV (or larger) or a central line) 2 mL/kilo for patients up to 40 kilos.

Patients 40-65 kilos.:

- 80 mL Iohexol (Omnipaque) 300 MG/mL @ 2 mL/sec

Patients above 65 kilos:

- Use the Medrad™ P3T for contrast.

For non-sedated infants or if you only have a 24G IV or an IV in the hand:

- Inject at 1 mL/sec
- Saline chaser equal to 1/2 of the contrast dose

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from diaphragm through pubic symphysis.
- Series 2 – Helical Scan
  - 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.
  - Scan Phase: – Start scan at the top of the diaphragm, end at the pubic symphysis. If patient has inflammatory bowel disease, scan through perineum.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	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 (ALI_Store) PACS. 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.7**	**0.8**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(15-220)**	**(30-330)**	**(45-600)**	**(40-580)**	**(60-720)**
Manual mA	**160.0**	**230.0**	**420.0**	**410.0**	**500.0**
Noise Index	**10.5**	**12.0**	**13.5**	**15.0**	**14.5**
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/44-55 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**

Acute Appendicitis - Abdomen/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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.

IV Contrast Parameters

Contrast Dosage (patients should have a 22G IV (or larger) or a central line) 2 mL/kilo for patients up to 40 kilos.

Patients 40-65 kilos.:

- 80 mL Iohexol (Omnipaque) 300 MG/mL @ 2 mL/sec

Patients above 65 kilos:

- Use the Medrad™ P3T for contrast.

For non-sedated infants or if you only have a 24G IV or an IV in the hand:

- Inject at 1 mL/sec
- Saline chaser equal to 1/2 of the contrast dose

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from diaphragm through pubic symphysis
- Series 2 – Helical Scan
  - 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.
  - Scan Phase: Start scan at bottom of kidneys, end at pubic symphysis.

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	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 (ALI_Store) PACS. 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 16.1.2/16.2.2/16.4.2/16.6.2/16.8.2

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 Recon	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 (ALI_Store) PACS. 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	600/50	600/50	600/50	600/50	600/50

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	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	1.375	1.375
Speed (mm/rot)	27.50	27.50	27.50	55.00	55.00
Rotation Time (s)	0.4	0.4	0.4	0.7	0.8
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(15-220)	(30-330)	(45-600)	(40-580)	(60-720)
Manual mA	160.0	230.0	420.0	410.0	500.0
Noise Index	10.5	12.0	13.5	15.0	14.5
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/44-55 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 16.1.3/16.2.3/16.4.3/16.6.3/16.8.3

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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 prior to scan (A 200mL dose every 20 minutes over an hour).

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.

IV Contrast Parameters

2 mL/kilo for patients up to 40 kilos.

Patients 40-65 kilos.:

- 80 mL Iohexol (Omnipaque) 300 MG/ML @ 4 mL/sec

Patients above 65 kilos.:

- Medrad™ P3T
- 4-5 mL/sec injection rate

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 – manually breath patient for the arterial and late arterial phase
  - Smart Prep - Monitor Phase on the aorta at the level of mid liver. Dynamic transition is turned on. Delays are pre-programmed for the following two groups.
  - Early arterial phase. Scan from top of liver to bottom of liver; be sure to include proximal SMA
  - Late arterial phase. Same coverage as early arterial phase.
    - On 8 and 16 detector scanners: immediately start at the bottom of the liver and end at the top
    - On 64 slice detector scanners: 20 seconds after peak of the contrast timing bolus, start at the bottom of the liver and end at the top
- Portal venous phase – 70 seconds after the peak of the timing bolus, start at diaphragm and scan through iliac crest (or pubic symphysis if pelvis also ordered).

Reformat Instructions

Use DMPR on THIN ST.

Reformats

Name	Source Recon	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 (ALI_Store) PACS. 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**0.531**	**0.531**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.7**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-390)**	**(50-580)**	**(45-600)**	**(35-550)**	**(50-650)**
Manual mA	**270.0**	**410.0**	**420.0**	**380.0**	**450.0**
Noise Index	**8.0**	**9.0**	**10.0**	**11.5**	**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 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/44-55 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**

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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.7**	**0.8**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(15-220)**	**(30-330)**	**(45-600)**	**(40-580)**	**(60-720)**
Manual mA	**160.0**	**230.0**	**420.0**	**410.0**	**500.0**
Noise Index	**10.5**	**12.0**	**13.5**	**15.0**	**14.5**
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 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**

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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.7**	**0.8**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(15-220)**	**(30-330)**	**(45-600)**	**(40-580)**	**(60-720)**
Manual mA	**160.0**	**230.0**	**420.0**	**410.0**	**500.0**
Noise Index	**10.5**	**12.0**	**13.5**	**15.0**	**14.5**
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 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	**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**

Trauma Abdomen/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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

Contrast Dosage (patients should have a 22G IV (or larger) or a central line) 2 mL/kilo for patients up to 40 kilos.

Patients 40-65 kilos.:

- 80 mL Iohexol (Omnipaque) 300 MG/mL @ 2 mL/sec

Patients above 65 kilos:

- Use the Medrad™ P3T for contrast.

For non-sedated infants or if you only have a 24G IV or an IV in the hand:

- Inject at 1 mL/sec
- Saline chaser equal to 1/2 of the contrast dose

Field of View

As small as possible

Scan Description

- Series 1 – PA & Lateral Scout: from diaphragm through pubic symphysis
- Series 2 – Helical Scan
  - 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.
  - Scan Phase: Start scan at the top of the diaphragm and end below the pubic symphysis.
- 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 Recon	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 (ALI_Store) PACS. 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**0.531**	**0.531**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.7**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-390)**	**(50-580)**	**(45-600)**	**(35-550)**	**(50-650)**
Manual mA	**270.0**	**410.0**	**420.0**	**380.0**	**450.0**
Noise Index	**8.0**	**9.0**	**10.0**	**11.5**	**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/44-55 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**
Recon 3 (Secondary)					
DFOV	**15**	**15**	**15**	**15**	**15**
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	**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 4 (Secondary)					
DFOV	**15**	**15**	**15**	**15**	**15**
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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.7**	**0.8**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(15-220)**	**(30-330)**	**(45-600)**	**(40-580)**	**(60-720)**
Manual mA	**160.0**	**230.0**	**420.0**	**410.0**	**500.0**
Noise Index	**10.5**	**12.0**	**13.5**	**15.0**	**14.5**
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/44-55 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**

Chest - Standard (Routine & 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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.

IV Contrast Parameters

2 mL/kilo for patients up to 37 kilos.

75 mL Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec for patients > 37 kilos.

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 – Helical Scan
  - 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.
  - Scan Phase: Scan from just above the lung apices and extend through lung bases with full inspiration.
- 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 Recon	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 Bone	DMPR	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	Thin Bone	DMPR	Average	1500/-700	4	2	coronal

Networking

All Images to (ALI_Store) PACS. 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 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	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-160)**	**(20-240)**	**(30-440)**	**(40-600)**	**(60-700)**
Manual mA	**110.0**	**170.0**	**310.0**	**420.0**	**490.0**
Noise Index	**12.0**	**14.0**	**15.5**	**17.5**	**17.0**
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**
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/44-55 cm
Scan Type	**Axial**	**Axial**	**Axial**	**Axial**	**Axial**
Beam Collimation	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Detector Rows	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Detector Configuration	**2x0.625**	**2x0.625**	**2x0.625**	**2x0.625**	**2x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1**	**1**	**1**	**1**	**1**
Speed (mm/rot)	**1.30**	**1.30**	**1.30**	**1.30**	**1.30**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.4**	**0.5**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-120)**	**(15-180)**	**(25-320)**	**(35-550)**	**(50-610)**
Manual mA	**80.0**	**120.0**	**230.0**	**380.0**	**430.0**
Noise Index	**21.0**	**24.0**	**27.0**	**30.5**	**29.5**
Slice Thickness (mm)	**1.25**	**1.25**	**1.25**	**1.25**	**1.25**
Interval (mm)	**10**	**10**	**10**	**10**	**10**

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	**30**	**30**	**30**	**30**	**30**
Recon Type	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**	**Bone Plus**
WW/WL	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**	**1500/-700**
Recon Option					
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)	**10**	**10**	**10**	**10**	**10**

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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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	44-55

- If the patient is bigger than 60 cm scan in a Medium Adult protocol and perform the adult reformats.

IV Contrast Parameters

2 mL/kilo for patients up to 37 kilos.

75 mL Iohexol (Omnipaque) 300 MG/ML @ 2 mL/sec for patients > 37 kilos.

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
  - If patient is under general anesthesia, scan supine for both inspiratory and expiratory phases.
  - If patient is not sedated, scan supine for inspiratory and prone for expiratory. You should re-scout before the

prone series.

Reformat Instructions

No reformats unless requested by a Radiologist

Reformats

None.

Networking

Please send the entire study to PACS 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

	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	**600/50**	**600/50**	**600/50**	**600/50**	**600/50**

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/44-55 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/44-55 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	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-160)**	**(20-240)**	**(30-440)**	**(40-600)**	**(60-700)**
Manual mA	**110.0**	**170.0**	**310.0**	**420.0**	**490.0**
Noise Index	**12.0**	**14.0**	**15.5**	**17.5**	**17.0**
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**
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/44-55 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	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-160)**	**(20-240)**	**(30-440)**	**(40-600)**	**(60-700)**
Manual mA	**110.0**	**170.0**	**310.0**	**420.0**	**490.0**
Noise Index	**12.0**	**14.0**	**15.5**	**17.5**	**17.0**
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/44-55 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**
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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.

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 Recon	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 Bone	DMPR	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	Thin Bone	DMPR	Average	1500/-700	4	2	coronal

Networking

All Images to (ALI_Store) PACS. 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	600/50	600/50	600/50	600/50	600/50

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	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	1.375	1.375
Speed (mm/rot)	27.50	27.50	27.50	55.00	55.00
Rotation Time (s)	0.4	0.4	0.4	0.4	0.4
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(10-110)	(15-170)	(25-310)	(35-520)	(60-730)
Manual mA	80.0	120.0	220.0	360.0	510.0
Noise Index	14.5	16.5	18.5	21.5	20.5
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/44-55 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**
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**

CTA Chest 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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

2 mL/kilo for patients up to 40 kilos.

Patients 40-65 kilos.:

- 80 mL Iohexol (Omnipaque) 300 MG/ML @ 4 mL/sec

Patients above 65 kilos.:

- Medrad™ P3T
- 4-5 mL/sec injection rate

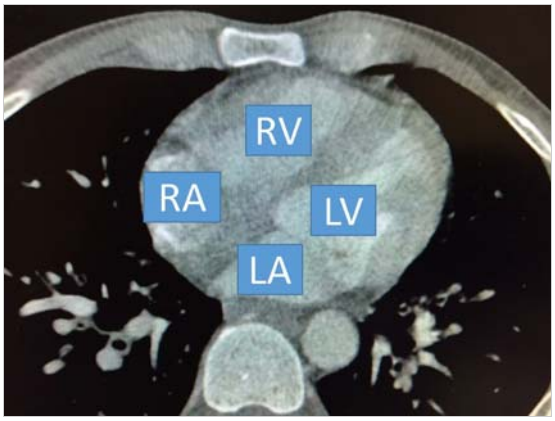
For sites without the Medrad™ P3T or P3T PA option, refer to the weight based contrast tables we provide in the protocol booklet.

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
  - 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.
  - Scan Phase: from lower neck to diaphragm with IV Contrast. Inspiratory breathing instructions are on, remind the patient not to bear down or strain.



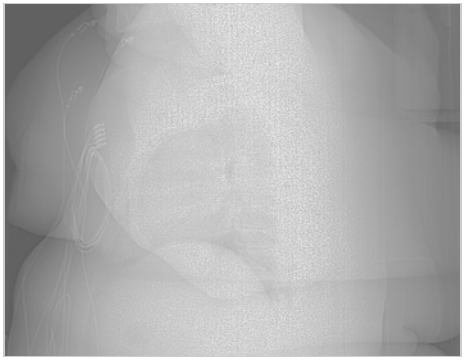
Smart Prep location should be the LA

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.

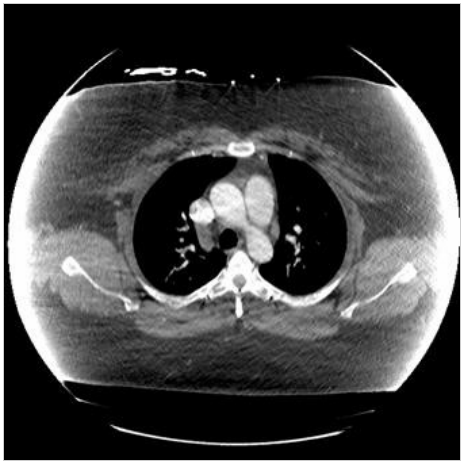
Note: If you know the patient is likely to max out the mA table before taking the scout, you should increase the scout kV from 120 to 140.

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 Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
PEDS SA CHEST	Thin Bone	Manual	MIP	1500/-700	4	2	sagittal
PEDS CO CHEST	Thin Bone	Manual	MIP	1500/-700	4	2	coronal

Networking

All Images to (ALI_Store) PACS. 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	**600/50**	**600/50**	**600/50**	**600/50**	**600/50**

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/44-55 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/44-55 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	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**55.00**	**55.00**	**55.00**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(10-160)**	**(20-240)**	**(30-440)**	**(40-600)**	**(60-700)**
Manual mA	**110.0**	**170.0**	**310.0**	**420.0**	**490.0**
Noise Index	**12.0**	**14.0**	**15.5**	**17.5**	**17.0**
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	**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/Abdomen/Pelvis 15.1.5/15.2.5/15.4.5/15.6.5/15.8.5

Patients between the ages of 18-20 years to be scanned C/A/P in one scan; do not scan using two groups.

Additional resources for this protocol are available here https://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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.

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

IV Contrast Parameters

Contrast Dosage (patients should have a 22G IV (or larger) or a central line) 2 mL/kilo for patients up to 40 kilos.

Patients 40-65 kilos.:

- 80 mL Iohexol (Omnipaque) 300 MG/mL @ 2 mL/sec

Patients above 65 kilos:

- Use the Medrad™ P3T for contrast.

For non-sedated infants or if you only have a 24G IV or an IV in the hand:

- Inject at 1 mL/sec
- Saline chaser equal to 1/2 of the contrast dose

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
  - 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.
  - Scan Phase: 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 diagnostic delay to the smart prep. You may want to turn off your DMPR's and manually preform the reformats.

Reformat Instructions

Use DMPR on recon 2 (thins)

- Recon 2 is the Soft Tissue Recon

Reformats

Name	Source Recon	DMPR or Manual	Type (MIP, Average, etc.)	WW/WL	Slice Thickness (mm)	Interval (mm)	Orientation
PEDS SA CHEST	Thin BONE	Manual	Average	1500/-700	4	2	sagittal
PEDS CO CHEST	Thin BONE	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

Networking

All Images to (ALI_Store) PACS. 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	**600/50**	**600/50**	**600/50**	**600/50**	**600/50**

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/44-55 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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.7**	**0.8**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(15-220)**	**(30-330)**	**(45-600)**	**(40-580)**	**(60-720)**
Manual mA	**160.0**	**230.0**	**420.0**	**410.0**	**500.0**
Noise Index	**10.5**	**12.0**	**13.5**	**15.0**	**14.5**
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/44-55 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**
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/Abdomen/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://www.radiology.wisc.edu/uw-ge-ct-protocol-project/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

- 2 mL/kilo for patients up to 40 kilos.
- Patients 40-65 kilos use 80 mL contrast.
- Patients above 60 kilos use the Medrad™ P3T for contrast.
- 4 mL/sec injection rate; saline chase
- Iohexol 300

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 – 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 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.
- 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 Recon	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 Recon	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 (ALI_Store) PACS. 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	**600/50**	**600/50**	**600/50**	**600/50**	**600/50**

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/44-55 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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**0.531**	**0.531**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.7**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-390)**	**(50-580)**	**(45-600)**	**(35-550)**	**(50-650)**
Manual mA	**270.0**	**410.0**	**420.0**	**380.0**	**450.0**
Noise Index	**8.0**	**9.0**	**10.0**	**11.5**	**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 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/44-55 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**
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**	**15**	**15**
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	**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 5 (Secondary)					
DFOV	**15**	**15**	**15**	**15**	**15**
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**	**15**	**15**
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 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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**0.531**	**0.531**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**21.20**	**21.20**
Rotation Time (s)	**0.4**	**0.4**	**0.7**	**0.5**	**0.6**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(30-390)**	**(50-580)**	**(45-600)**	**(35-550)**	**(50-650)**
Manual mA	**270.0**	**410.0**	**420.0**	**380.0**	**450.0**
Noise Index	**8.0**	**9.0**	**10.0**	**11.5**	**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, 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/44-55 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**
Recon 7 (Secondary)					
DFOV	**15**	**15**	**15**	**15**	**15**
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	**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 8 (Secondary)					
DFOV	**15**	**15**	**15**	**15**	**15**
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**	**15**	**15**
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/44-55 cm
Scan Type	**Helical**	**Helical**	**Helical**	**Helical**	**Helical**
Beam Collimation	**20**	**20**	**20**	**40**	**40**
Detector Rows	**32.0**	**32.0**	**32.0**	**64.0**	**64.0**
Detector Configuration	**32x0.625**	**32x0.625**	**32x0.625**	**64x0.625**	**64x0.625**
Scan FOV	**Small Body**	**Small Body**	**Small Body**	**Small Body**	**Medium Body**
Pitch	**1.375**	**1.375**	**1.375**	**1.375**	**1.375**
Speed (mm/rot)	**27.50**	**27.50**	**27.50**	**55.00**	**55.00**
Rotation Time (s)	**0.4**	**0.4**	**0.4**	**0.7**	**0.8**
kV	**80**	**80**	**80**	**80**	**100**
AEC type	**smart mA**	**smart mA**	**smart mA**	**smart mA**	**smart mA**
mA Range	**(15-220)**	**(30-330)**	**(45-600)**	**(40-580)**	**(60-720)**
Manual mA	**160.0**	**230.0**	**420.0**	**410.0**	**500.0**
Noise Index	**10.5**	**12.0**	**13.5**	**15.0**	**14.5**
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/44-55 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**

Routine Abdomen/Pelvis (Higher Image Quality) 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6

Clinical Instructions

Clinical Instructions for this protocol are identical to Routine Abdomen/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/44-55 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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

Acute Appendicitis - Abdomen/Pelvis (Higher Image Quality) 16.1.6/16.2.6/16.4.6/16.6.6/16.8.6

Clinical Instructions

Clinical Instructions for this protocol are identical to Acute Appendicitis - Abdomen/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 Abdomen/Pelvis (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) 16.1.7/16.2.7/16.4.7/16.6.7/16.8.7

Clinical Instructions

Clinical Instructions for this protocol are identical to Renal Stone/Flank Pain 16.1.2/16.2.2/16.4.2/16.6.2/16.8.2

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	600/50	600/50	600/50	600/50	600/50

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	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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

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/44-55 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	0.531	0.531	0.531
Speed (mm/rot)	27.50	27.50	10.60	21.20	21.20
Rotation Time (s)	0.5	0.6	0.4	0.8	0.8
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(45-580)	(50-675)	(45-675)	(45-675)	(60-730)
Manual mA	370.0	390.0	360.0	360.0	470.0
Noise Index	6.5	7.5	8.0	9.5	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 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/44-55 cm
Recon 1					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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/44-55 cm
Recon 1					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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/44-55 cm
Recon 1					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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 Abdomen/Pelvis (Higher Image Quality) 16.1.9/16.2.9/16.4.9/16.6.9/16.8.9

Clinical Instructions

Clinical Instructions for this protocol are identical to Trauma Abdomen/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/44-55 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	0.531	0.531	0.531
Speed (mm/rot)	27.50	27.50	10.60	21.20	21.20
Rotation Time (s)	0.5	0.6	0.4	0.8	0.8
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(45-580)	(50-675)	(45-675)	(45-675)	(60-730)
Manual mA	370.0	390.0	360.0	360.0	470.0
Noise Index	6.5	7.5	8.0	9.5	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

	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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	15	15	15	15	15
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 Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	15	15	15	15	15
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 Setup	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					
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 Setup	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 6					

DFOV	20	20	20	25	25
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 Setup	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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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/44-55 cm
Recon 1					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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 - Standard (Routine & High-Resolution) (Higher Image Quality) 15.1.8/15.2.8/15.4.8/15.6.8/15.8.8

Clinical Instructions

Clinical Instructions for this protocol are identical to Chest - Standard (Routine & 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/44-55 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	600/50	600/50	600/50	600/50	600/50

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	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.4	0.4	0.4
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(25-310)	(30-390)	(50-610)	(40-490)	(50-610)
Manual mA	200.0	240.0	390.0	310.0	390.0
Noise Index	10.0	11.5	12.5	14.5	14.0
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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/44-55 cm
Scan Type	Axial	Axial	Axial	Axial	Axial
Beam Collimation	1.25	1.25	1.25	1.25	1.25
	2.0	2.0	2.0	2.0	2.0
Detector Rows	2x0.625	2x0.625	2x0.625	2x0.625	2x0.625
Detector Configuration	Small Body	Small Body	Small Body	Small Body	Medium Body
Scan FOV	1	1	1	1	1
Pitch	1.30	1.30	1.30	1.30	1.30
Speed (mm/rot)	0.4	0.4	0.4	0.5	0.7
Rotation Time (s)	80	80	80	80	100
kV	smart mA	smart mA	smart mA	smart mA	smart mA
AEC type	(15-180)	(20-270)	(35-480)	(45-650)	(50-660)
mA Range	120.0	190.0	340.0	460.0	460.0
Manual mA	17.0	19.5	22.0	25.0	24.5
Noise Index	1.25	1.25	1.25	1.25	1.25
Slice Thickness (mm)	10	10	10	10	10
Interval (mm)					

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					
DFOV	30	30	30	30	30
Recon Type	Bone Plus	Bone Plus	Bone Plus	Bone Plus	Bone Plus
WW/WL	1500/-700	1500/-700	1500/-700	1500/-700	1500/-700
Recon Option					
Recon Option					
ASIR Setup	None	None	None	None	None
Slice Thickness (mm)	1.25	1.25	1.25	1.25	1.25
Interval (mm)	10	10	10	10	10

Chest Pectus (Higher Image Quality) 15.1.10/15.2.10/15.4.10/15.6.10/15.8.10

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/44-55 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	600/50	600/50	600/50	600/50	600/50

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	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.4	0.4	0.4
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(15-210)	(20-270)	(35-430)	(25-340)	(35-430)
Manual mA	140.0	170.0	270.0	210.0	270.0
Noise Index	12.0	13.5	15.0	17.5	17.0
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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

CTA Chest for PE (Higher Image Quality) 15.1.11/15.2.11/15.4.11/15.6.11/15.8.11

Clinical Instructions

Clinical Instructions for this protocol are identical to CTA Chest 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/44-55 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.4	0.4	0.4
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(25-310)	(30-390)	(50-610)	(40-490)	(50-610)
Manual mA	200.0	240.0	390.0	310.0	390.0
Noise Index	10.0	11.5	12.5	14.5	14.0
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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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/Abdomen/Pelvis (Higher Image Quality) 15.1.12/15.2.12/15.4.12/15.6.12/15.8.12

Clinical Instructions

Clinical Instructions for this protocol are identical to Routine Chest/Abdomen/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/44-55 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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/Abdomen/Pelvis (Higher Image Quality) 15.1.13/15.2.13/15.4.13/15.6.13/15.8.13

Clinical Instructions

Clinical Instructions for this protocol are identical to Trauma Chest/Abdomen/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/44-55 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	600/50	600/50	600/50	600/50	600/50

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/44-55 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	0.531	0.531	0.531
Speed (mm/rot)	27.50	27.50	10.60	21.20	21.20
Rotation Time (s)	0.5	0.6	0.4	0.8	0.8
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(45-580)	(50-675)	(45-675)	(45-675)	(60-730)
Manual mA	370.0	390.0	360.0	360.0	470.0
Noise Index	6.5	7.5	8.0	9.5	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

	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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Bone Plus	Bone Plus	Bone Plus	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 Setup	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					
DFOV	15	15	15	15	15
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 Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	15	15	15	15	15
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 Setup	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					

DFOV	12	12	12	15	15
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 Setup	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 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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	0.531	0.531	0.531
Speed (mm/rot)	27.50	27.50	10.60	21.20	21.20
Rotation Time (s)	0.5	0.6	0.4	0.8	0.8
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(45-580)	(50-675)	(45-675)	(45-675)	(60-730)
Manual mA	370.0	390.0	360.0	360.0	470.0
Noise Index	6.5	7.5	8.0	9.5	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, 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/44-55 cm
Recon 1					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	15	15	15	15	15
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 Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	15	15	15	15	15
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 Setup	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					
DFOV	12	12	12	15	15
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 Setup	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/44-55 cm
Scan Type	Helical	Helical	Helical	Helical	Helical
Beam Collimation	20	20	20	40	40
Detector Rows	32.0	32.0	32.0	64.0	64.0
Detector Configuration	32x0.625	32x0.625	32x0.625	64x0.625	64x0.625
Scan FOV	Small Body	Small Body	Small Body	Small Body	Medium Body
Pitch	1.375	1.375	1.375	0.531	0.531
Speed (mm/rot)	27.50	27.50	27.50	21.20	21.20
Rotation Time (s)	0.4	0.4	0.5	0.5	0.5
kV	80	80	80	80	100
AEC type	smart mA	smart mA	smart mA	smart mA	smart mA
mA Range	(35-420)	(40-675)	(50-670)	(45-675)	(50-670)
Manual mA	270.0	330.0	430.0	330.0	430.0
Noise Index	8.5	9.5	11.0	12.5	12.0
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/44-55 cm
Recon 1					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option					
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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					
DFOV	20	20	20	25	25
Recon Type	Detail	Detail	Detail	Detail	Detail
WW/WL	450/50	450/50	450/50	450/50	490/70
Recon Option	Plus	Plus	Plus	Plus	Plus
Recon Option	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance	IQ Enhance
ASIR Setup	Slice 40%	Slice 40%	Slice 40%	Slice 40%	Slice 40%
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